United States Department of Agriculture

Forest Service

Idaho Panhandle National Forest

Coeur d'Alene River Ranger District

P. O. Box 14
Silverton, ID 83867

2502 East Sherman Avenue
Coeur d' Alene, ID 83814

**File Code:** 1950

**Date:** July 19,2001

Hello –

Enclosed is your copy of the Little Ucelly Heli Bug Environmental Assessment (EA). For the convenience of our interested public and in an effort to conserve paper and reduce publication costs, the documents are being provided on compact disk (CD), a format that offers a number of convenient features. For example, the document is book marked so the viewer can easily navigate from one section of the document to another. The viewer can also "zoom" in on maps and other materials, which make them considerably easier to read. If you do not have access to a computer, a printed copy will be provided upon request. If you received a CD but need to have a printed copy, please contact Kerry Arneson at our Feman Office (208-769-3021).

The document is also available to the public on our Forest's internet web page:

http://www.fs.fed.us/ipnf/eco/manage/nepa

Please send written comments to the Coeur d'Alene River Ranger District, Fernan Office, 2502 East Sherman Avenue, Coeur d'Alene, ID 83814. Your comments must be received by August 20,2001. If you have any questions, please contact Project Team Leader Bob Rehnborg at (208) 664-2318.

Sincerely,

JOSEPH P. STRINGER
District Ranger

enclosure

# LITTLE UCELLY HELI BUG ENVIRONMENTAL ASSESSMENT

**July 2001**

## Coeur d'Alene River Ranger District
**Idaho Panhandle National Forests**
**Kootenai County, Idaho**


Lead Agency: USDA Forest Service

Deciding Official: Joseph P. Stringer, District Ranger

For further information, contact: Bob Rehnborg, Project Team Leader
Coeur d'Alene River Ranger District
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## ABSTRACT


A small timber management project is being proposed in the Eagle Creek area within a portion of sections 13, 22, 23, 24, and 25, T50N, R4E, and sections 18, 19, and 20, T50N, R5E, Boise Meridian. The majority of the proposed treatments would be within the Ucelly Gulch drainage, with small portions on the ridge dividing the east and west forks of Eagle Creek and on a face drainage of Prichard Creek. This area has been identified as Management Areas 1 and 4 under the Forest Plan. Management Area 1 is to be managed for commercially valuable timber products while providing for wildlife habitat and the protection of other resources. Management Area 4 is to be managed to support projected big game habitat needs with scheduled timber harvest and permanent forage areas. Activities are proposed which would allow recovery of the economic value of dead and dying timber, reduce fuels in areas of timber mortality to lower fire hazard, and promote long-term vegetative restoration in areas of low residual stocking levels.

Timber losses in this area are primarily a result of Douglas-fir beetle mortality that appeared during the 2000 field season. This project area is outside of the analysis areas considered under the Douglas-fir Beetle EIS (USDA Forest Service, 1998) and the Coeur d'Alene River Ranger District's Small Sales EIS (USDA Forest Service, 2000). Beetle mortality occurred in the project area as a result of subsequent beetle flights and was not visually apparent during reconnaissance of previous assessments.

This environmental assessment describes three alternatives to meet the purpose and need. Alternative 1 is the No-Action Alternative (there would be no change from the current approach). Under Alternative 2 (the proposed action), harvest would occur on approximately 52 acres. Of this, the individual tree selection harvest method would be used on 45 acres and the group shelterwood method on 7 acres. Regeneration units would be underburned. Slash disposal in other units would either be lop and scatter or yarding tops depending on yarding system and soil conditions. Reforestation would favor returning pine and larch back into the ecosystem. Timber would be removed using helicopter and cable yarding methods with a small amount of tractor yarding. No new road construction or reconstruction would be considered under Alternative 2.

Under Alternative 3, the same harvest treatments and reforestation activities would occur as under Alternative 2, but 1.2 miles of roadway would be reconstructed and 0.2 miles of temporary road would be built. Timber would be removed using skyline, cable, and tractor yarding. There would be no helicopter yarding under this alternative.


***Copies of this Environmental Assessment are available on compact disk (CD) or in paper format from the Coeur d'Alene River Ranger District at the address above, and on the Idaho Panhandle National Forests' internet website (www.fs.fed.us/ipnf/eco/manage/nepa/).***

**COEUR D'ALENE RIVER RANGER DISTRICT**

# LITTLE UCELLY HELI BUG ENVIRONMENTAL ASSESSMENT

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# CHAPTER I
# PURPOSE AND NEED FOR ACTION

## PURPOSE AND NEED

Over the past several years, a widespread Douglas-fir beetle infestation has caused significant mortality to Douglas-fir trees scattered throughout the Coeur d'Alene River Ranger District. In 1999, the Forest Service addressed larger areas of mortality through the Douglas-fir Beetle Environmental Impact Statement (EIS) and Record of Decision (USDA Forest Service, 1999). Smaller areas of mortality were addressed through the Small Sales EIS initiated in March 2000 (USDA Forest Service, 2001). Beetle mortality in the Burnt Cabin Saddle area did not come to our attention until the summer of 2000 and hence was not considered under either of the two other analyses.

The opportunity exists to salvage a portion of this dead timber and promote long-term vegetative restoration in areas of low residual stand stocking levels. The purpose of this proposal is to:

- *allow recovery of the economic value of dead and diseased timber*
- *reduce fuels in areas of timber mortality to lower fire hazard*
- *promote long-term vegetative restoration in areas of low residual stand stocking as a result of timber losses to beetle mortality*

## PROPOSED ACTION

The proposed action (represented by Alternative 2) is to:

1) *Harvest dead and dying trees in areas attacked by bark beetles using salvage and regeneration harvest methods;*
2) *reduce the fire hazard through timber harvest and a combination of fuels treatment methods; and*
3) *restore long-lived seral tree species such as white pine, western larch and ponderosa pine in stands where bark beetles have killed a substantial portion of the basal area of the stand, through timber harvest, site preparation, and associated planting;*

Under the Proposed Action, timber harvest and fuels treatment would occur on a total of approximately 52 acres. Individual tree salvage treatment would occur on 45 acres. Regeneration harvest treatment would occur on 7 acres, followed by underburning and planting with pines and larch species. No road construction or reconstruction would occur within the treatment area. For more specific information regarding activities of the proposed action (acres by prescription, yarding methods, fuels treatment, etc.) refer to Table II-14, the Alternative Descriptions in this chapter, and the enclosed map.

## SCOPE OF THE PROPOSAL

The scope of this environmental assessment was determined through public scoping and agency analysis, in accordance with the requirements of 40 CFR 1508.25. The scope of the actions to be addressed includes the proposed timber harvest, fuels treatment, road construction and reconstruction, and reforestation activities. This environmental assessment documents analysis of site-specific, on-the-ground activities. It is not a general management plan for the Coeur d'Alene River Basin.

## DECISIONS TO BE MADE

This environmental assessment is not a decision document. This document discloses the environmental consequences of implementing the proposed action or alternatives to that action. The District Ranger for the Coeur d'Alene River Ranger District is the Deciding Official. His decision and the rationale for that decision will be stated in the Decision Notice. The District Ranger will select an alternative for implementation based on:

- *the extent to which each alternative addresses the purpose and need for action*
- *consistency with the goals and findings of Forest policy and legal mandates*
- *how well each alternative responds to environmental issues and concerns identified by the public, other agencies, and Forest Service resource specialists*
- *effects of the selected alternative in comparison to other alternatives considered*

## ORGANIZATION OF THE DOCUMENT

This document is tiered to and references the Forest Plan for the Idaho Panhandle National Forests, which sets forth the direction for managing the resources of the Forest. For clarity, that document is referred to simply as the "Forest Plan."

Chapter II presents the key resource issues within the area and describes the alternatives considered. Chapter III describes the existing conditions of specific resources and the changes that would occur to each resource under implementation of each alternative. Direct, indirect and cumulative impacts are discussed.

A List of Preparers identifies the individuals who conducted the analyses and prepared the environmental assessment. A List of References provides the full citation for those references noted in the environmental assessment. A list of Acronyms used in the text is provided, and the Glossary defines terms used in the text that may be unfamiliar to the reader. A list of those who will receive copies of this environmental assessment is provided. However, it is likely that others will request and receive copies of the document.

The Appendices contain analytical reports and specific or supplemental information that further explains discussions in the main chapters. Many more reports and analyses documentation have been referenced or developed during the course of this project, but were not included in this document either because they were technical in nature or were of excessive length. Those items are referred to as being part of the "project files." All project files for the Little Ucelly Heli Bug Environmental Assessment (EA) are available for review by the public. To review the files, please contact the Project Team Leader or the NEPA Coordinator at the Fernan Office of the Coeur d'Alene River Ranger District, (208) 664-2318.

## PUBLIC REVIEW AND COMMENT

This document is an environmental assessment. The assessment will be sent out for public review and comment prior to a decision being issued. The decision will be prepared based on comments from the public and other agencies, identification of necessary corrections or additional analysis, and any new information.

Comments are invited on this environmental assessment. In accordance with 36 CFR 215, and to ensure consideration in making a decision, comments must be postmarked or recevied 30 days from the date of publication of the legal notice in the Spokesman-Review newspaper. Commenters should include their name, address, telephone number, and the organization they represent (if any); the title of the document on which the comment is being submitted; and facts and reasons specific to this proposal for the Deciding Official to consider.

Comments received on the proposed project (including names and addresses of those who comment) will be considered part of the public record and will be available for public inspection. We can accept and consider comments submitted anonymously; however, people who submit anonymous comments will not have standing to appeal the subsequent decision (36 CFR 215). Any person may request that we withhold submitted comments from the public record (pursuant to 7 CFR 1.27(d)) by showing how the Freedom of Information Act (FOIA) permits such confidentiality. However, confidentiality may be granted in only very limited circumstances, such as to protect trade secrets. We will inform the requestor of the agency's decision regarding the request for confidentiality. If the request is denied, we will return the submitted comments and notify the requester that the comments may be resubmitted, with or without name and address, within a specified time.

***District Ranger Joseph Stringer is the responsible official for this proposal. For further information, please contact Project Team Leader Bob Rehnborg at the Fernan Office of the Coeur d'Alene River Ranger District, (208) 664-2318.***

# CHAPTER II
# ALTERNATIVES

## INTRODUCTION

This chapter describes the alternatives considered to achieve the purpose and need discussed in Chapter I. The National Environmental Policy Act (NEPA) requires federal agencies to "identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment" (40 CFR 1500.2(e)). This chapter discloses the sources of analysis direction and guidance, alternative development (including public involvement), features common to all alternatives (including monitoring and mitigation), comparison of alternatives and their effects, and alternatives considered but eliminated from further study.

## ANALYSIS DIRECTION AND GUIDANCE

### National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires analysis of projects to ensure the anticipated effects upon all resources within the project area are considered prior to project implementation (40 CFR 1502.16). The analysis for the Little Ucelly Heli Bug project followed the guidelines of NEPA as provided by the Council on Environmental Quality (CEQ).

### Natural Resources Agenda

On March 2, 1998, Forest Service Chief Mike Dombeck announced the Forest Service Natural Resource Agenda. The Agenda provides the Chief's focus for the Forest Service, and identifies specific areas where there will be added emphasis, including:

- *watershed health and restoration*
- *forest road policy*
- *sustainable forest management*
- *recreation*

The activities have been designed to be consistent with the goals and tentative direction provided under the Natural Resources Agenda to date.

### Natural Fire Plan

In 2000, over 92,000 wildland fires burned more than 7.5 million acres of grass, brush and forested lands across the United States. In response, the Secretaries of Agriculture and the Interior developed an interagency approach to respond to severe wildland fires, reduce their impacts on rural communities, and assure sufficient firefighting capacity in the future. The "National Fire Plan" identifies five key program areas designed to respond to the severe wildfires of 2000, to reduce their impacts on rural communities, and to enhance firefighting capabilities in the future. In Idaho, a total of over $91.3 million has been allocated to these programs. Specific proposals were submitted by field units (such as Ranger Districts) for consideration. The Little Ucelly Heli Bug project is not a National Fire Plan proposal. Therefore, there is no further discussion of the National Fire Plan in this document.

## Forest Service Road Management and Transportation System Rule

On January 28, 1998, in an Advance Notice of Proposed Rulemaking (63 CFR 4350), the Forest Service announced its intent to revise regulations concerning management of the national forest transportation system. In January 2001, the Forest Service issued a Final Rule regarding specific revisions to the road system rules at 36 CFR part 212 and to Forest Service administrative directives governing transportation analysis and management. The roads policy provides basic procedural protection for inventoried roadless areas and contiguous unroaded areas from road building until the Roadless Area Conservation Rule (discussed below) becomes effective, and the Forest completes a forest-scale roads analysis and incorporates it into the Forest Plan.

One of the tools developed to meet objectivees of the revised policy is an integrated, science-based roads analysis process that allows objective evaluation of the environmental, social and economic impacts of proposed road construction, reconstruction, maintenance, and decommissioning (USDA Forest Service, 1999, Misc. Rep. FS-643). The six-step process does not make decisions nor allocate lands for specific purposes. Rather, the analysis identifies and addresses a set of possible issues and applicable analysis questions that, when answered, produce information for forest line officers to consider about possible road construction, reconstruction, and decommissioning needs and opportunities.

Line officers must also choose the appropriate geographic scale or scales and how detailed the analysis will be. Selecting the appropriate scale for assessing roads opportunities depends on the issues being analyzed and how their effects are manifested; the extent and nature of linkages with other ecological, social, and economic systems; the nature of variables under the control of the decision process; the information availability and value in relation to the range of potential consequences; and budget and personnel constraints (Roads Analysis: Informing Decisions about the National Forest Transportation System, USDA Forest Service, 1999, pg. 4).

The small scope of this project did not warrant a detailed road analysis of this area. The existing transportation features and conditions were considered in the analysis. No new road development is proposed under Alternative 2. Under Alternative 3, 1.2 miles of existing road would be reconstructed, and 0.2 miles of temporary road would be constructed. These roads are located high on the slope above any draw crossings. For additional information, please refer to the "Transportation Planning" discussion under "Issues Not Addressed in Detail in This EA," in Appendix A.

## Roadless Area Conservation Rule

On October 13, 1999, President Clinton directed the Forest Service to develop a proposal for managing some 50 million acres of roadless areas in the National Forests. The Roadless Area Conservation Rule was published in the Federal Register on January 5, 2001, and was to be effective May 12, 2001. Essentially, the Final Rule prohibits new road construction and reconstruction and prohibits the cutting, sale and removal of timber in inventoried roadless areas on National Forest System lands (with specific exceptions). On May 10, 2001, the Idaho U.S. District Court preliminarily enjoined the Forest Service from implementing the Roadless Area Conservation Rule.

There are no lands in or adjacent to the Little Ucelly Project Area identified as Inventoried Roadless Areas under the Forest Service Roadless Area Conservation Plan. There are roadless areas to the west, north, and east, but they are 2 to 3 miles from the project area and would not be affected by this proposal. Therefore, there would be no change to road access in relation to inventoried roadless areas under any alternative. There is no further discussion of this issue.

## Interior Columbia Basin Ecosystem Management Project

This analysis was guided by integrated ecological assessments and strategies that began in 1993 by direction from President Clinton to "develop a scientifically sound and ecosystem-based strategy for management of eastside forests." This direction resulted in the combined Bureau of Land Management and Forest Service project known as the Interior Columbia Basin Ecosystem Management Project (ICBEMP). The assessment covers the "interior" portion of the Columbia River Basin and those portions of the Klamath and Great Basins within Oregon. This includes the states of Oregon and Washington east of the crest of the Cascade Mountains, most of Idaho, and small portions of northern Nevada, western Montana and western Wyoming, for a total of 145 million acres.

The scientific findings for the ICBEMP were released during the fall of 1996. At the Interior Columbia Basin scale, the findings for the river basins on the Idaho Panhandle National Forests show that the river basins have a low composite ecological integrity primarily due to past alterations. Further findings show low forest integrity throughout, mixed low to moderate aquatic integrity, and mixed low, moderate and high integrity hydrologic conditions.

The Little Ucelly Heli Bug Project Area is in ICBEMP Forest Cluster #4, which emphasizes reducing risk to ecological integrity and species viability (USDA Forest Service, 1996, Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin). The primary risks to ecological integrity within Forest Cluster #4 are risks to hydrologic and aquatic systems from fire potential, risks to late and old forest structures in managed areas, and risks in forest compositions that are susceptible to insect, disease, and fire (Integrated Scientific Assessment, page 113). Proposed activities in the Little Ucelly Project Area would address these three primary risks in a manner consistent with Chapter 8 of the Integrated Scientific Assessment. The effectiveness of each alternative in addressing those risks is discussed for each appropriate resource (in the Aquatic Resources, Forest Vegetation, and Fire/Fuels sections).

A Final EIS for the Interior Columbia Basin project was released in December 2000, with a "proposed" decision. Once a Record of Decision is signed, National Forests and BLM Districts will begin implementing the new strategy. Although the scientific findings of the ICBEMP are not part of the Forest Plan for the Idaho Panhandle National Forests, they are expected to provide guidance for the revision of the Forest Plan. No decisions or guidelines for analysis were made exclusively on this information; however, the science behind the ICBEMP is used in the analyses for the Little Ucelly Heli Bug project. When available, information and direction provided in the ICBEMP Record of Decision will be reviewed to determine whether a correction, supplement, or revision to the Little Ucelly Heli Bug EA is necessary, in compliance with Forest Service Handbook 1909.15 (Chapter 18).

## Northern Region Overview

The Northern Region Overview, which covers northern Idaho and Montana, focused on priorities within northern Idaho and Montana for restoring ecosystem health and availability of recreation opportunities. The assessment describes the changes in vegetation that are contributing to the current beetle infestation.

> *"In northern Idaho and moist portions of western Montana, Douglas-fir was largely an early succession species that regenerated well after wildfire in various mixes with white pine and larch, but then was largely eliminated by root disease and beetles after 100-140 years, giving way to pine and larch. In the absence of white pine and larch, we have experienced an increase in Douglas-fir during early succession, and an apparent increase in root disease inoculum levels as succession proceeds. When Douglas-fir dies in stands now, the result is an effective 50-150 year acceleration of succession to grand fir and hemlock. This condition with heavy root disease and ladder fuels*

*promotes and increases risk of stand-replacement fire." (Northern Region Overview Detailed Report; USDA October, 1998, page 22)*

*"The most significant societal and ecological risk is associated with fire; particularly where ladder fuels exist or are developing near or adjacent to urban interface locations." (Northern Region Overview; USDA October, 1998. page 24)*

The Northern Region Overview Summary explores this Region's situation with regard to ecosystem health and recreation. Ecosystem health was once referred to by ecologist Aldo Leopold as the capacity of the land for self-renewal. Ecological integrity, as discussed in the Columbia Basin and step-down assessments, is the wholeness or completeness of an ecosystem, the degree to which it has all the parts and processes it needs to function properly (Northern Region Overview Summary, USDA April 1999, pages 3-6). Characteristics of ecosystems with high integrity are:

- *Resiliency (the ability to withstand fires and other disturbances)*
- *Supportive of native and desired non-native species diversity*
- *Consist of a mosaic of well-connected habitats.*
- *Have functions (such as seed dispersal and decay) and processes (such as nutrient and water cycles) that operate effectively*

The Northern Region Overview findings conclude that there are multiple areas of concern in the Northwest Zone of the Region, but that "this subregion holds the greatest opportunity for vegetation treatments and restoration with timber sales. From a social and economic standpoint, using timber harvest for ecological restoration would be a benefit to the many communities which still have a strong economic dependency, more so than in other zones in the Region. Aquatic restoration should be focused on specific needs based on the zone aquatic restoration strategy." The timber management (timber harvest) tool best fits with the forest types in northern Idaho and is essential, for example, to achieve the openings needed to restore white pine and larch, and maintain upland grass/shrub communities. (Northern Region Overview Summary, USDA April 1999, page 9)

## Forest Plan for the Idaho Panhandle National Forests

General management direction for the Idaho Panhandle National Forests is found in the Forest Plan, which provides Forest-wide goals and objectives (Forest Plan, Chapter II). The standards and guidelines for the Forest Plan (Forest Plan, Chapter II) apply throughout the Resource Area. The Inland Native Fish Strategy was prepared in July, 1995, to provide interim direction to protect habitat and populations of resident native fish outside of anadromous fish habitat in eastern Oregon, eastern Washington, Idaho, western Montana, and portions of Nevada (USDA Forest Service, 1995). Under the authority of 36 CFR 219.10(f), the decision amended Regional Guides for the Forest Service's Intermountain, Northern, and Pacific Northwest Regions and Forest Plans in the 22 affected Forests, including the Idaho Panhandle National Forest. In development of the alternatives, standards and guidelines of the Inland Native Fish Strategy were used specifically to protect water and aquatic biota within the Resource Area. Please refer to the discussion under "Features Common to All Action Alternatives – Features Designed to Protect Aquatic Resources" in this chapter for more specific information.

## Coeur d'Alene River Basin Geographic Assessment

An assessment for the Coeur d'Alene River basin was conducted to gain a better understanding of the "big picture;" the conditions at this level in relation to those at the Upper Columbia River Basin scale (USDA Forest Service, 1998. Toward an Ecosystem Approach: An Assessment of the Coeur d'Alene River Basin. Idaho Panhandle National Forests, Ecosystem Paper #4). For clarity, that document is referred to simply as

the "Geographic Assessment." The Geographic Assessment supplements the Forest Plan, but is not a Forest Plan amendment. In addition, the Geographic Assessment will facilitate revision of the Forest Plan, which is scheduled to be accomplished in 2002. At this time, the Geographic Assessment is treated as new information that is incorporated into the environmental documentation and shared with the public.

The recommendations and strategies presented in the Geographic Assessment were based on three major groups of findings: social and economic, landscape and terrestrial, and aquatic. The findings of the assessment proved to be consistent with the findings of the Upper Columbia River Basin findings at the next scale down. To identify the overall strategy for the Coeur d'Alene River Basin, the terrestrial, watershed, wildlife and recreation (sense of place) maps were overlaid. The highest priority for active restoration becomes 1) non-functioning watersheds with serious terrestrial problems; and 2) functioning-at-risk watersheds with serious terrestrial problems (Geographic Assessment, pages 62-65).

## Migratory Bird Executive Order

On January 10, 2001, President Clinton signed an Executive Order describing the Responsibilities of Federal Agencies to Protect Migratory Birds, directing executive departments and agencies to take certain actions to further implement the Migratory Bird Treaty Act. Section 3 of the Order states, "Each Federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations is directed to develop and implement, within 2 years, a Memorandum of Understanding (MOU) with the Fish and Wildlife Service (Service) that shall promote the conservation of migratory bird populations." Item e-6 directs that each agency shall "ensure that environmental analyses of Federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern."

The analysis of effects to wildlife in the Little Ucelly Heli Bug Project Area evaluated effects of the proposed activities on neotropical (migratory) birds, as disclosed in Appendix A (Issues Not Discussed in Detail in this EA). As more information and direction related to this Executive Order becomes available, the analysis and documentation related to the Little Ucelly project will be reviewed to determine whether a correction, supplement, or revision to the EA is necessary, in compliance with Forest Service Handbook 1909.15 (Chapter 18).

## Other Legal Mandates

In addition to compliance with Forest policy, each resource discussion in Chapter III identifies the laws and regulations ("Regulatory Framework") that applies to that particular resource, and addresses how well each alternative would meet applicable legal mandates ("Consistency With Forest Policy and Legal Mandates").

# SCOPING AND ALTERNATIVE DEVELOPMENT

## Scoping

The first step in environmental analysis is to determine what needs to be analyzed. To do this the NEPA outlines a process termed "scoping" (refer to 40 CFR 1501.7). This is an open process designed to determine the potential issues associated with a proposed action and then, from this list, to further identify those issues that are significant to the decision, and those which are not significant or which have been covered by prior environmental review and therefore should be eliminated from detailed analysis. The public was notified of this project in three ways: 1) the Quarterly Schedule of Proposed Actions" for the IPNFs (starting with the January 2001 issue); 2) a legal ad in the newspaper of record (Spokesman-Review) dated February 16, 2001; and 3) a scoping letter (dated February 16, 2001) was sent to those individuals and organizations who requested additional information.

During scoping, letters were received from Bryan Bird, (Forest Conservation Council), Mike Mihelich (Kootenai Environmental Alliance), and Jeff Juel (Ecology Center). Copies of their letters and Forest Service response to comments are provided in Appendix A (Public Involvement). The team has considered concerns identified by the public and incorporated their ideas whenever possible. Refer to Appendix A for a detailed discussion of public involvement efforts, how public comments led to issues and alternatives, and how public concerns were addressed.

## Issues

There are several issues considered as factors in the decision to be made. Some are of sufficient concern to drive development of alternatives to the extent feasible within the physical, biological, and legal limits of forest management. Others were not key in developing alternative concepts, but are important for their value in assessing specific protective measures. These protective measures become features of the alternatives and/or specific mitigation measures. They have been addressed in detail either because the effects will have a bearing on the decision to be made, or because these resources are of interest or concern to the public. The issues include:

| Issue | Identified as a concern by |
|---|---|
| Forest vegetation | Forest Service, Forest Conservation Council, Ecology Center |
| Economic values (finances) | Forest Service, Forest Conservation Council |
| Water resources and fisheries | Forest Service, Forest Conservation Council, Ecology Center |
| Specific wildlife species *(black-backed woodpecker, flammulated owl, fisher, northern goshawk, and elk)* | Forest Service, Forest Conservation Council |

In addition, all three environmental organizations emphasized the importance of the cumulative effects analysis, which is addressed through the documentation in Chapter III, rather than as an issue.

Based on the assessment of effects and public comment, the agency determined that most other issues could be adequately mitigated or addressed by design features or other aspects of the proposed activities. A list of these issues and brief discussion of each of those issues is provided in Appendix A ("Issues Not Addressed in Detail in this Environmental Assessment").

## Alternative Development and Modification

Development of alternatives was based on existing condition of resources in the project area, issues and concerns identified by the project team and the public, and the purpose and need identified for the project. The "Federal Guide to Watershed Analysis - Environmental Analysis at the Watershed Scale" (USDA Forest Service, August 1995) was not used in alternative development for this proposal. The "Watershed Analysis" is a process used to focus on proposed activity areas, describe current conditions, and identify possible treatment alternatives. This process has been used for proposals similar in scope (for example, the Burnt Cabin Heli Bug project) and was found to be of limited value for such a small scale project. Although the process was not used to develope alternatives, watershed conditions for the Little Ucelly Heli Bug proposal were assessed at the watershed scale, as described in Chapter III. For additional discussion of the use of public comments in alternative development and modification, please refer to Appendix A.

## Alternatives Considered But Eliminated From Further Study

During project development three other proposals were analyzed but dismissed from further consideration. The interdisciplinary team proposed and considered an option that would **utilize only regeneration treatments** since most of the stands fall within the mature sawtimber size class. This alternative was eliminated because of considerable regeneration treatments that have already occurred in the project area.

Another option proposed and considered by the team would **utilize only salvage treatments**. In this project area, a salvage-only alternative would not demonstrate any substantial difference in loss of canopy that would occur with salvage-only treatment versus using regeneration treatment, since most of the timber to be cut in regeneration areas is already dead. Therefore, the only change that was being measured was whether the site would be planted or allowed to regenerate naturally. This was not enough of a difference to develop a separate alternative.

A **harvest, restoration only** option was proposed by the Forest Conservation Council (and alluded to by the Ecology Center). This option was considered but dismissed because it would not allow recovery of the economic value of dead and diseased timber, would not reduce fuels in areas of timber mortality to lower fire hazard, and would not promote long-term vegetative restoration in areas of low residual stand stocking, all of which are goals identified in the Purpose and Need, Chapter I. This could be possibly be done without the use of commercial logging, but such a project would not be economical, efficient or effective considering the diverse needs and desires of the public and national forest timber resources management direction. Based on this information, a restoration-only alternative was not developed further.

Additional information regarding these options is provided in Appendix A, "Alternatives Considered But Elminated From Further Study."

## REASONABLY FORESEEABLE ACTIVITIES

To address cumulative effects, activities that have a reasonable chance of occurring have been identified within the watershed analysis area (which includes the East and West Forks of Eagle Creek and George Gulch). This helps to establish the appropriate geographic and temporal (time) boundaries for the cumulative effects analysis. The following tables display information about projects that are either ongoing or reasonably foreseeable. The analysis of effects to resources incorporated the effects of these activities as appropriate (please refer to the cumulative effects discussions for each resource in Chapter III).

Within the cumulative effects area, there are no ongoing timber projects, and no ongoing or reasonably foreseeable recreation or grazing projects.

### Table II-1. Ongoing General Projects.

| Project | Activities | Watershed | Approximate Duration |
|---|---|---|---|
| District Travel Plan | Road and trail management | District-wide | Until next revision |
| Noxious Weeds | Integrated noxious weed treatment (338 acres) | 76 sites across the district | Until 2005 |

**Table II-2. Ongoing Timber sale related projects on closed sales.**

| Project | Activities | Watershed | Approximate Duration |
|---|---|---|---|
| Baldy Cabin | Planting, exams | East Fork Eagle Creek | Through 2001, exams 2004 |
| Cotton Goat | Exams | East Fork Eagle Creek | Through 2003 |
| Hairless Ridge | Exams, stepdowns and wood recruitment in West Fork Eagle, planting, 2 miles road decompaction | West Fork Eagle Creek | Through 2005 |
| Prichard Peak | Planting, exams, site prep burn 14 ac. | Ucelly Gulch | Through 2004, exams 2008 |
| Upper Cottonwood | ¼ mile riparian road oblit., 2-3 stream channel restoration sites | West Fork Eagle Creek | Through 2001 |

**Table II-3. Ongoing Minerals Projects.**

| Project | Activities | Watershed | Approximate Duration |
|---|---|---|---|
| Morse | Placer-Gold – recreational, storage cabin within road oblit. prism | East Fork Eagle Creek | Through 2001 - extendable |

**Table II-4. Reasonably Foreseeable General Projects.**

| Project | Activities | Watershed | Approximate Duration |
|---|---|---|---|
| AT&T Fiber Optic Line | Installation of fiber-optic line along existing road | Prichard Creek | Summer 2002 |

**Table II-5. Reasonably Foreseeable Timber Projects.**

| Project | Activities | Watershed | Approximate Duration |
|---|---|---|---|
| Small Sales EIS | 38 acres individual tree salvage and 22 acre regen harvest of beetle kill timber, 7 acres underburn, planting | Nocelly Gulch | Through 2004 |

**Table II-6. Reasonably Foreseeable Preferred Fuelwood Gathering Projects.**

| Project | Activities | Watershed | Approximate Duration |
|---|---|---|---|
| Lower Prichard Peak | Preferred public fuelwood gathering (open Road 343) | George Gulch | Summer 2003 |
| Nocelly Gulch | Preferred public fuelwood gathering | Nocelly Gulch | Summer 2003 |

**Table II-7. Reasonably Foreseeable Minerals Projects.**

| Project | Activities | Watershed | Approximate Duration |
|---|---|---|---|
| Stutzke | Placer-Gold – exploration (several trenches within 500 feet of stream) | Toboggan Creek | Through 2001-extendable |
| CERCLA Repository | Repository | East and West Fork Eagle Creek | Through 2009 |

**Table II-8. Ongoing or Reasonably Foreseeable Projects on other Federal, State, and Private Ownership.**

| Ownership | Activities | Watershed | Approximate Duration |
|---|---|---|---|
| Private lands | Subdivision and development | West Fork Eagle Creek | ongoing |
| Private lands | Recreational dredge mining | Eagle Creek below Ucelly | ongoing |

# OPPORTUNITIES

Because of the narrow scope of this proposal and because of the amount of watershed restoration work that has already occurred in the Eagle Creek drainage in recent years, the Little Ucelly Heli Bug project provides few opportunities for non-vegetative restoration work. Five miles of riparian road has been removed from the East Fork of Eagle Creek. Over 1 mile of riparian road was recontoured up Nocelly Gulch. One and a half miles of riparian road was recontoured up Cottonwood Creek. Six additional stream channel sites were restored with another 2 to 3 sites and one-quarter mile of road obliteration scheduled for summer 2001 in Cottonwood Creek. Instream work is also scheduled for the West Fork of Eagle Creek under the Hairless Ridge Sale project. The crossing on Road 978 (a 36-inch culvert) in Ucelly Gulch was surveyed to ensure adequacy for the Inland Native Fish Strategy standards. It was run against Q100 models and found to be adequate. Culvert locations on Road 3019 where also inspected. Two major drainages structures (36- and 18-inch culverts) are armored. Q100 runs found the 36-inch culvert to be adequate. Modeled runs of the 18-inch culvert showed that it only met a 50 year event. However, an on the ground inspection showed that there is very little flow through this pipe, and with existing armoring, was determined to be adequate.

The following activities have been identified as opportunities in the project area:

1. *There is approximately three-quarters of a mile of old roadway in Ucelly Gulch with one channel crossing that will be surveyed to see if there is an opportunity to do watershed restoration work.*
2. *There is an opportunity to accomplish approximately 3 acres of ecoburning between Units 9 and 10. This area is for the most part an open brushfield as a result of mortality to root disease.*
3. *Many areas affected by the proposed activity, especially road segments and landings, will likely be surveyed and monitored to assess the establishment and spread of noxious weeds. However, the exact extent of surveying, monitoring and treatment, and the availability of funds is not known at this time, therefore these activities are classified as opportunities rather than features of an alternative. Treatments would be conducted under the guidelines of the Noxious Weed EIS for the Coeur d'Alene River Ranger District.*

# ALTERNATIVE DESCRIPTIONS

The No-Action Alternative and two action alternatives are described in detail in this section, including features common to both action alternatives, mitigation measures, and monitoring activities that would occur. Comparing a range of alternatives will help determine which activities, if any, should occur under this project. The range of alternatives considered is reasonable given the characteristics of the area, the current conditions, the purpose and need for action, and the desired effects.

In addition to other activities, the action alternatives include timber harvest practices designed to meet particular silvicultural goals. A detailed description of the features of various silvicultural systems and their effects is included in the Forest Plan (Forest Plan, Appendix A). Specific unit information is provided in Appendix B of this deocument.

### *Alternative 1 (No Action)*

The No-Action Alternative is required by NEPA and NFMA. Under this alternative, none of the proposed activities would occur at this time. There would be no change from current management direction or from the level of management intensity in the area. Implementation of the foreseeable activities identified earlier in this chapter would still occur. Because there would be no recovery of the economic value of damaged timber, no improvement in the vegetative resources, and no reduction in risk of wildfire, this alternative would not meet any of the specific objectives of the Forest Plan and Geographic Assessment identified for this project. The No-Action Alternative was analyzed in detail to display the effects of not meeting these objectives, and to compare against the action alternatives.

### *Alternative 2*

Alternative 2 represents the Proposed Action. From a vegetation standpoint, the objectives of this alternative are to harvest dead and dying trees in areas attacked by Douglas-fir bark beetles, to salvage trees fading to root disease and other causal agents of mortality, and to restore long-lived seral tree species such as white pine, western larch and ponderosa pine in stands where bark beetles have killed a substantial portion of the basal area of the stand. The emphasis of the treatment would be to salvage dead and dying timber. Stands with over 50% of live basal area remaining would be scheduled for an individual tree selection harvest to salvage the dead and dying timber. This type of harvest would include removal of beetle mortality (this includes trees that are attacked by beetles that have crown symptoms indicating the trees will die) and associated trees fading to root disease or other pathogens. Additional incidental green trees may need to be removed to allow for safe felling practices or removal of trees significantly damaged during the harvest operation. Units of this harvest type would range from 1 to 13 acres in size. Fuels treatments in salvage units would vary between yarding tops and lop and scatter depending on soil conditions and yarding system.

**Basal area** is the area of a cross section of a tree measured near the base of the trunk, generally at breast height, which is considered to be 4 ½ feet from the ground.

In stands where 50% or less of the basal area remains as a result of mortality to beetles, and a logical treatment unit can be established, a regeneration harvest would be used to create conditions suitable for the establishment of pines and larch. The emphasis would be on retention of groups and/or scattered individual large healthy overstory trees. Smaller green trees that are not expected to survive underburning in these stands would be harvested unless retained for wildlife habitat. Generally, healthy Douglas-fir over 16 inches in diameter and grand fir over 18 inches in diameter would be retained on site. Logging slash, competing brush, and fir regeneration would be burned prior to planting with desired seral species. The regeneration harvests would range from group shelterwood to seed tree depending on the amount of large healthy green component on site. There would be 2 regeneration harvests ranging from 3 to 4 acres in size for a total of 7

treatment acres. Generally, 15-20% of the stand basal area in group shelterwood harvest would be retained with approximately 5-10% retention in a seed tree harvest.

### *Alternative 3*

The difference between this alternative and that described above is based on yarding systems. This alternative would access all of the treatment areas using conventional yarding systems. No helicopter yarding would be used. Approximately 1.2 miles of road would need to be reconstructed and 0.2 miles of temporary road would need to be constructed. Both roads are located above riparian areas so no drainage structures would be needed. The reconstructed road would be waterbarred and closed with a front-end obliteration after use. The temporary road would be recontoured after use. Harvest treatments would be the same as described above. The increase in volume under this alternative is the result of right-of-way volume associated with the temporary road and corridor volume to reach treatment areas. This additional volume would be from green timber. Fuels treatments would vary from alternative 2. Fuels reduction treatments in skyline units would be top-attached yarding. This is a much more economical option with a skyline yarding system than if helicopter yarded.

The following table displays the amount of harvest by silvicultural prescription, road work, and yarding methods that would occur under each of the alternatives. Refer to the following alternative descriptions, enclosed alternative maps and the Project Files for additional information.

**Table II-9. Proposed activities, by alternative.**

| Feature | Alt. 1 | Alt. 2 | Alt. 3 |
|---|---|---|---|
| Proposed Harvest (Acres): | | | |
| Salvage | 0 | 45 | 45 |
| Group Shelterwood (with planting) | 0 | 4 | 4 |
| Seed Tree (with planting) | 0 | 3 | 3 |
| Total harvest acres | 0 | 52 | 52 |
| Proposed fuels treatment (Acres) | | | |
| Lop and scatter | 0 | 36 | 12 |
| Top attached | 0 | 9 | 33 |
| Jackpot | 0 | 0 | 0 |
| Underburning | 0 | 7 | 7 |
| Total fuels treatment acres | 0 | 52 | 52 |
| Proposed Road Work (Miles) | | | |
| New road construction | 0 | 0 | 0 |
| System road reconstruction | 0 | 0 | 1.2 |
| Temporary road construction | 0 | 0 | 0.2 |
| Yarding Systems (Acres) | | | |
| Cable | 0 | 18 | 24 |
| Helicopter | 0 | 31 | 0 |
| Horse | 0 | 0 | 0 |
| Skyline | 0 | 0 | 25 |
| Tractor | 0 | 3 | 3 |
| Expected Harvest Volume: | | | |
| Timber volume (CCF) *1* | 0 | 600 | *700 |
| Timber volume (MBF) *2* | 0 | 300 | *350 |

*1 CCF = 1 cunit (one hundred cubic feet)*
*2 MBF = thousand board feet*
** increase in volume associated with road right-of-way and corridor volume.*

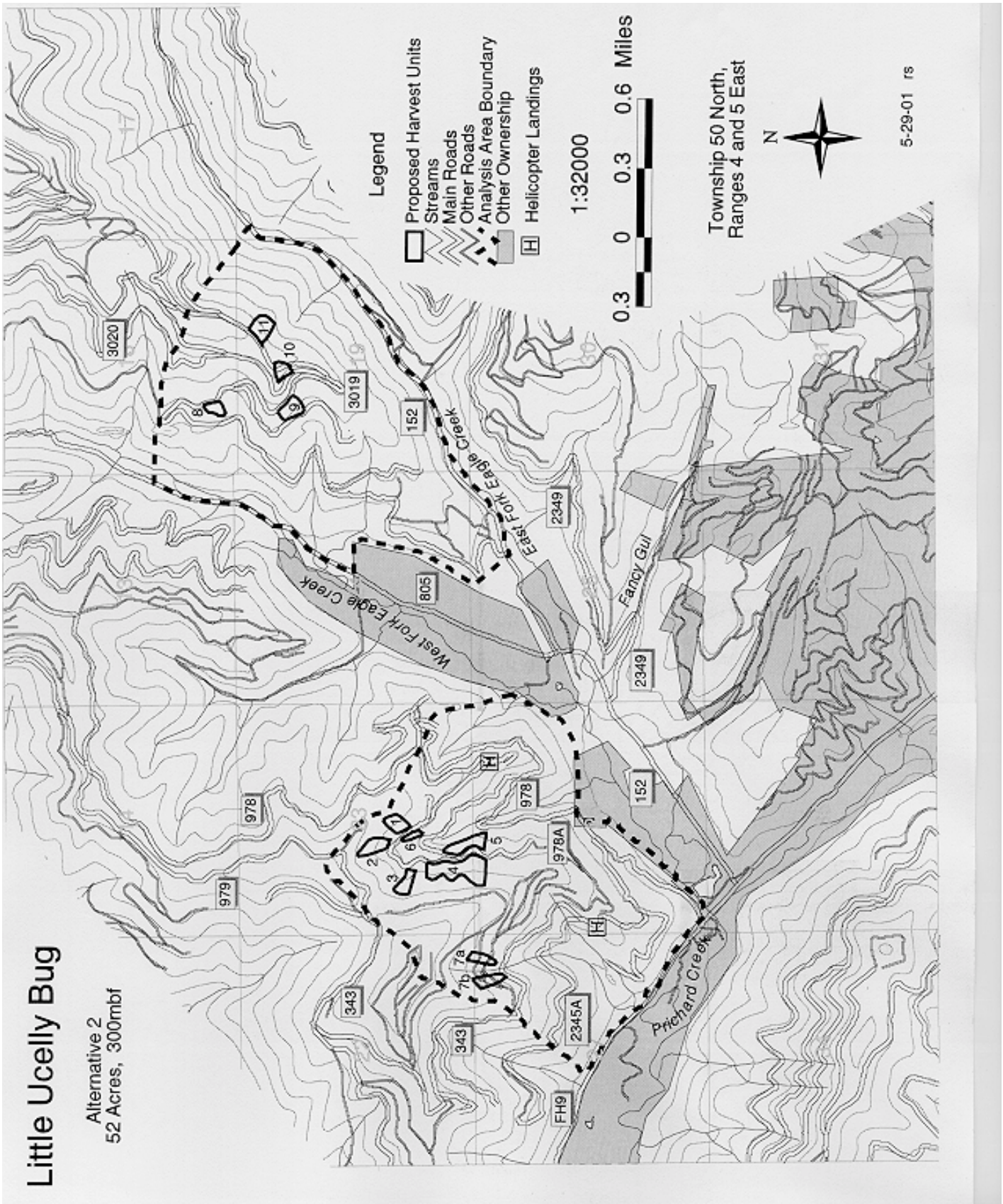


**Figure II-1. – Little Ucelly Heli Bug Alternative 2 Map.**

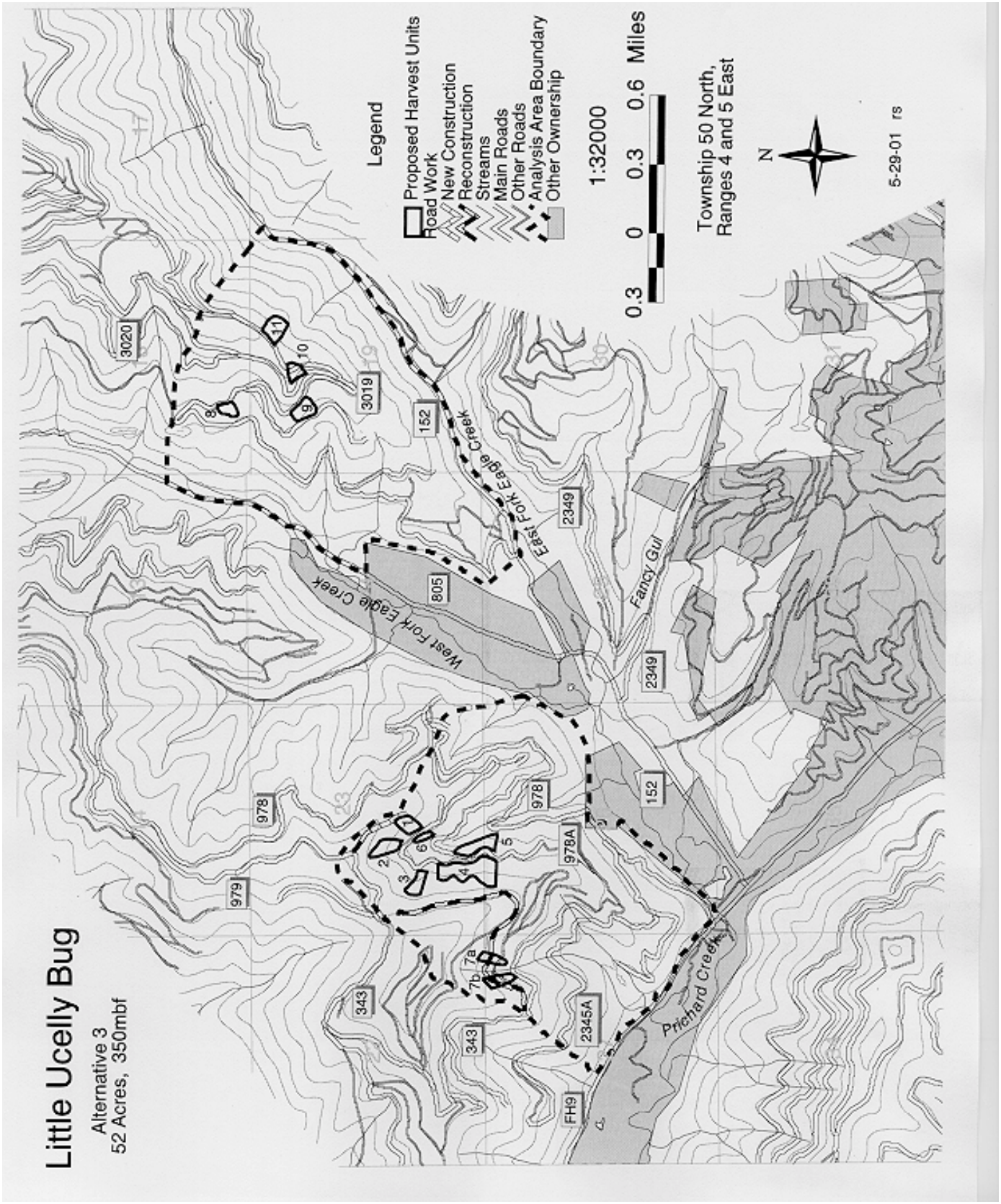


**Figure II-2. – Little Ucelly Heli Bug Alternative 3 Map.**

## Features Common to All Action Alternatives

### *Features Designed to Protect Aquatic Resources*

In development of the action alternatives, standards and guidelines of the Inland Native Fish Strategy were used specifically to protect water and aquatic biota within the Resource Area. Riparian Habitat Conservation Areas (RHCAs), known locations of sensitive plants and special wildlife habitat areas were excluded from proposed timber harvest or fuel treatment activities. Standard widths for defining interim Riparian Habitat Conservation Areas (RHCA's) were utilized with no modifications. Riparian Management Objectives and road management standards and guidelines were applied within the Resource Area boundary on those roads used for harvesting or hauling of timber. Streamside buffers would be applied along all harvest units in all action alternatives. The intent of the buffers are to meet the riparian management objectives of maintaining slope stability in potentially sensitive areas, maintain stream temperatures and provide a long-term supply of large woody debris.

There is only one proposed unit near any stream channel. Unit 5 is adjacent to a Category 4 channel (Ucelly Gulch); there would be a no-harvest buffer of 75 feet on the channel. The draw between units 7a and 7b is not a defined channel but is still being buffered. There is no instream work proposed with this project, therefore timing restrictions would not be necessary. Category 4 includes seasonally flowing or intermittent streams, wetlands less than 1 acre, landslides, and landslide-prone areas. This category includes features with high variability in size and site-specific characteristics.

To minimize erosion and ensure compliance with State water quality standards, all road use and timber harvest associated with the Little Ucelly Heli Bug project would be completed using Best Management Practices. The Forest Service Handbook 2509.22 (Soil and Water Conservation Handbook) outlines Best Management Practices that meet the intent of the water quality protection elements of the Idaho Forest Practices Act. Soil and water conservation practices, identified in the Soil and Water Conservation Handbook, are standard provisions to timber sale contracts (USFS Timber Sale Contract - Division B, 2400-6). Activities would meet or exceed rules and regulations of the Idaho Forest Practices Act, Best Management Practices, and the Idaho Forestry Act and Fire Hazard Reduction Laws (1988).

### *Features Related to Vegetation Management*

All proposed harvest units are on sites determined to be suitable for timber production. Within 5 years of regeneration treatment, site preparation for regeneration, fuel treatment and planting would occur. In approximately 10 to 30 years the stands proposed for regeneration may be entered for pre-commercial thinning, pruning, cleaning and possibly fertilization to meet target stand and management area guidelines. Proximity access for stand-tending purposes will be easy to maintain as these areas are located along main arterial travel routes. Precommercial thinning and pruning has been shown to decrease mortality due to white pine blister rust in resistant and non-resistant stock (Schwant, Marsden, McDonald, 1994) and are important tools in managing for this species.

### *Features Designed to Protect TES Plant Habitat*

No harvest activity would occur which would adversely affect any known rare plant population. All populations potentially adversely affected would be buffered from harvest activity by a minimum of 100 feet. No harvest activity would occur within riparian habitat.

All newly-identified Threatened and Sensitive plant occurrences would be evaluated. Specific protection measures would be implemented to minimize impacts to that population occurrence and its habitat. Areas of high potential habitat would be surveyed prior to implementation. The timber sale contract would include

provision C6.251, which allows for modification of the contract if protection measures prove inadequate, if new areas of plants are discovered, or if new species are added to the list. For additional information, please refer to the "Mitigation" discussion in this chapter.

### *Features Designed to Protect Air Quality*

The Idaho Panhandle National Forest is a party to the North Idaho Smoke Management Memorandum of Agreement, which established procedures regulating the amount of smoke produced from prescribed fire. The North Idaho group currently uses the services and procedures of the Montana State Airshed Group. The procedures used by the Montana Group are considered to be the "best available control technology" by the Montana Air Quality Bureau for major open burning in Montana. A Missoula-based monitoring unit is responsible for coordinating prescribed burning in North Idaho during the months of April through November. This unit monitors meteorological data, air quality data, and planned prescribed burning and decides daily on whether or not restrictions on burning are necessary the following day.

In practice, a list of all prescribed burning planned for the burning season on the Coeur d'Alene River Ranger District is forwarded to the monitoring unit through the Idaho Panhandle National Forest fire desk before March 1. Daily, by 8:30 a.m., the Coeur d'Alene River Ranger District informs the fire desk of all burning planned for the next day and the fire desk forwards this information to the monitoring unit. By 3:00 p.m. the same day the monitoring unit informs the Forest if any restrictions are to be in effect the following day, and the fire desk informs the District. These procedures limit smoke accumulations to legal, acceptable limits.

Historically, prescribed burning on the Coeur d'Alene River Ranger District occurs in the spring and fall seasons over a total time span of 45 to 60 days during each season. All burning complies with federal, state and local regulations. Management practices include, but are not limited to, burning under spring-like conditions (high moisture content in fuels, soil and duff) to reduce emissions, provide for retention of large woody debris, and to protect the soil. Prescribed burning during spring or fall will generate less smoke than a much hotter stand replacing summertime wildfire.

### *Features Designed to Protect Wildlife Habitat*

Live leave trees in regeneration areas would be reserved from harvest to provide size class diversity and long-term snag recruitment. Forest Plan snag guidelines will be met. In most of the proposed harvest units, 4 of the largest dead trees per acre would be maintained. Units 7a and 8 would require that 6 of the largest dead trees per acre be maintained for nesting habitat.

If active flammulated owl nest sites are found, the Forest Service may cancel timber harvest and yarding activities within 200 feet of the nest site. If active goshawk nest sites were found, the nest site would be protected with a 30-acre no-harvest buffer. If the nest is being actively used by a goshawk, no tree felling, yarding or other potentially disturbing activities would occur within approximately one-quarter mile of the nest site (as determined by the Forest Service) from March 15 to August 15. These features would be incorporated into timber sale packages using Timber Sale Contract clause C6.251. These mitigation measures, in conjunction with the small scale and duration of this project, are expected to result in no effect to northern goshawk populations.

No helicopter operations would occur within one-half mile of the old mill pond at the mouth of Eagle Creek between December 1 and March 31.

All roads that are currently closed with earth barriers, that are opened for periods greater than 2 weeks, will be required to be gated during use. Gates will be closed at the end of daily activities. Earth barriers will be re-installed after use.

In all harvest units it would be necessary to retain some down logs in order to protect long-term site productivity, maintain soil organic matter, and provide wildlife habitat. On moist sites, 15 to 20 logs or down trees would be retained on the site, with 3 to 6 logs or down trees retained on dry sites. These logs should be at least 12 inches in diameter and 6 feet long.

### *Features Designed to Protect Recreational Use*

Contract provisions would be included to protect public safety (refer to "Public Safety" under "Issues Not Discussed in Detail in This Environmental Assessment" in Appendix A). In addition, log hauling would be prohibited on Forest Roads 978 and 343 on weekends and holidays. No harvest activities would occur from December 1 to March 31, unless snow depths are less than 1 foot.

### *Features Designed to Protect Heritage Resources*

All known heritage resource sites would be protected under any alternative, as directed by the Cultural Resources Management Practices (Forest Plan, Appendix FF). Any future discovery of heritage resource sites or caves would be inventoried and protected if found to be of cultural significance. A decision would be made to avoid, protect, or mitigate effects to these sites in accordance with the National Historic Preservation Act of 1966.

### *Schedule of Activities*

If any of the action alternatives are selected for implementation, the following schedule of activities would likely occur. The season of work and acres treated would depend upon the alternative selected, availability of funding, and operating schedule. Please refer to Chapter III, Finances, for a discussion of the types of funding.

**Table II-10. Approximate schedule of activities proposed under the action alternatives.**

| Activity | Alternatives 2 and 3 |
|---|---|
| Timber harvest | 2001-2002 |
| Prescribed burning | 2003 |
| Tree planting | 2004 |

## Mitigation

The following mitigation measures are an integral facet of both action alternatives and have been identified as necessary to reduce environmental effects to natural resources as a result of implementing the proposed activities. Should an action alternative be selected for implementation, these measures would be incorporated into the project design, timber sale contract, and other contracts and project plans.

### *TES Plants*

All previously unsurveyed areas identified as highly suitable habitat that, as a result of the proposed activity, would have a high risk of adverse effects to proposed, Threatened or Sensitive plant populations or habitat must be surveyed prior to project implementation. Some areas previously surveyed may be resurveyed, based on the date and intensity of the most recent survey and the risk to habitat from proposed activities. Under either action alternative, all harvest units and the road reconstruction area would be surveyed prior to implementation of activities. Specific features of the alternatives (Features Common to All Alternatives, in

this chapter) would be implemented to protect any newly documented population and its habitat. Should rare plants be located during surveys, one or more of the following protective measures would be implemented:

- *Drop proposed units from activity*
- *Modify the proposed activity*
- *Implement a minimum of 100 feet slope distance buffers around Sensitive or Threatened plant occurrences as necessary to minimize effects and maintain population viability.*
- *Implement, if necessary, Timber Sale Contract provisions C(T)6.251 (Protection of Endangered Species) and C(T)9.52 (Settlement for Environmental Cancellation).*

These measures are estimated to be highly effective. The requirement to survey, identify and protect populations from adverse effects and to buffer habitat for Threatened species from all activities would be implemented prior to the award of the contract. The maintenance of any buffers protecting populations would be administered in the contract.

## Monitoring

### *Forest Plan Monitoring*

The Forest Plan documents a system to monitor and evaluate Forest activities. Monitoring and evaluation each have distinctly different purposes and scope. In general, monitoring is designed to gather the data necessary for project evaluation. During evaluation of project effectiveness, data provided through the monitoring effort are analyzed and interpreted. This process will provide periodic data necessary to determine if implementation is within the bounds of the project design (Forest Plan, page IV-7). For activities related to the Little Ucelly Heli Bug project, all alternatives would comply with specific monitoring requirements identified by the Forest Plan (Forest Plan, Chapter IV). The length of time that monitoring is needed will be determined by the results and evaluation of what is being monitored. When it is certain that regulations and standards are being met, monitoring of a particular element will cease. If monitoring evaluations show that regulations or standards are not being achieved at the desired level, management intervention will occur.

### *Forest Corporate Monitoring*

In December 1999, the Ecosystem Team for the Idaho Panhandle National Forests facilitated development of a Corporate Monitoring System. The emphasis is on monitoring our progress in restoring the ecosystems of the Idaho Panhandle and in being more consistent in the way we analyze effects to the ecosystems. The monitoring is tied closely to findings of the Interior Columbia Basin and Coeur d'Alene Geographic Assessment. The data that will be tracked for long-term monitoring is provided in the table below. Project-based changes to the core data elements will be described in a table in the Decision Notice.

### Table II-11. Long-term monitoring of ecosystem core data.

| Ecosystem condition core data monitoring element | Core data to be monitored |
|---|---|
| Hydrologic integrity | Road density |
| Wildlife security and public access | Open road density |
| Water yield | Hydrologic openings (equivalent clearcut acres) |
| Changes in forest structure outside the historic range of variability | Forest structure by size and age-class groups |
| Changes in species composition outside the historic range of variability | Forest composition by forest cover type group |
| Habitat loss and species decline | TES dry and moist/cold site habitat restoration |
| Changes in landscape pattern | Landscape pattern indicators (mean patch size and variability, edge density, etc.) |

### *Monitoring Specific to This Project*

In addition to the Forest monitoring discussed above, the following monitoring activities would occur specific to this project:

Vegetation: All regeneration units would be monitored for regeneration success. All regeneration would be complete in 5 years. All intermediate treatments would be monitored to assess achievement of prescription objectives.

## COMPARISON OF ALTERNATIVES

The following briefly compares the effects of each alternative as they relate to the project objectives and issues. It is important that the data in the tables be used as a simple comparison, and not taken out of context. The decision to implement one alternative over another will mean weighing the trade-offs of benefits and effects. A detailed discussion of environmental consequences is provided in Chapter III, by resource.

## Forest Vegetation

The Forest Conservation Council and Ecology Center both briefly identified old growth as a concern. There is no old forest structure nor are there any stands being managed for old growth characteristics in the project area. The project area is included in portions of three old growth analysis units (Units 10, 12, and 16). Old Growth Unit 10 contains 2,309 acres of managed old growth stands (19.5% of the old growth unit). Old Growth Unit 12 contains 1,152 acres of stands being managed for old growth (11% of the old growth unit). Old Growth Unit 16 contains 897 acres of managed old growth (10.8% of the old growth unit). Many of these old growth areas have been affected by the Douglas-fir beetle, but none are proposed for treatment at this time.

The following table displays the percent of stands in each structural stage and cover type class. The table shows that even if no action is taken, some of the stands proposed for treatment will move toward the seedling/sapling category as a result of bark beetle mortality. These stands will regenerate to the same fir cover type. The treatment proposed under Alternative 2 would result in an increase in pine and larch stands within the project area. Since white pine would likely be the dominate species in the planting mix, regeneration units will be moved into the white pine cover types. Though small in scope, this proposal would trend the area toward goals identified in the Columbia Basin Assessment and the Forest Plan, for a more historic level of species composition. Under Alternative 3, the proposed unit treatments, structural stage class, and cover types would be the same as under Alternative 2. There would be some additional loss of green canopy under this alternative associated with skyline corridor volume and road right-of-way. This would be necessary so that the project could be completed without the need for more expensive helicopter yarding methods.

**Table II-12. Acres in each structural stage and cover type under all alternatives.**

| Structural Stage | Existing | No action (Alt. 1) | Alt. 2 | Alt. 3 |
|---|---|---|---|---|
| Shrub/Seedling/Sapling | 448 | 468 | 468 | 468 |
| Pole/Small-medium Timber | 478 | 477 | 477 | 477 |
| Mature/Large Timber | 830 | 811 | 811 | 811 |
| Old Forest | 0 | 0 | 0 | 0 |
| Allocated old growth | 0 | 0 | 0 | 0 |
| Recruitment old growth | 0 | 0 | 0 | 0 |
| **Cover Type** | | | | |
| Douglas-fir | 734 | 734 | 731 | 731 |
| Grand fir | 657 | 657 | 654 | 654 |
| Western White Pine | 205 | 205 | 212 | 212 |
| Ponderosa Pine | 66 | 66 | 66 | 66 |
| Western Hemlock | 33 | 33 | 33 | 33 |
| Western Larch | 28 | 28 | 28 | 28 |
| Cedar | 20 | 20 | 20 | 20 |
| Lodgepole Pine | 10 | 10 | 9 | 9 |
| Mtn. Hemlock/Subalpine fir | 0 | 0 | 0 | 0 |
| Cottonwood | 0 | 0 | 0 | 0 |
| Non-Forest | 0 | 0 | 0 | 0 |

## Fire/Fuels

The project interdisciplinary team identified concerns related to current fuel levels and potential wildland fires. Under the No-Action Alternative, the prolonged buildup of fuel may lead to fires more catastrophic and destructive to the site than typically occurred in the native forest. The combination of more fine fuels such as grasses and shrubs regenerating in openings, new understory trees serving as ladder fuels, and continuing accumulation of heavy fuels from down logs and snags all contribute to changes in fuels and towards more severe fire behavior, which in turn threaten future fire control, increase the danger to firefighters, and place neighboring forest ecosystems at risk. The fuel conditions that enable a fast moving wildfire of higher than normal intensity could persist for several decades. After that time, these fuels would likely be decomposed and become incorporated into the organic layer of the soil.

Timber harvest under the action alternatives can significantly affect both short and long-term fuel loading. Timber harvest moves unavailable aerial fuels (tops, stems, limbs, needles) into available surface fuels. Thus the risk of a crown fire may be reduced while the risk of surface fires can be increased by moving fuel to the ground. Timber harvest can reduce the risk of crown fire in both short and long-term. Timber harvest will increase the risk of surface fire over the short-term (2-4 years) but will decrease the surface fire risk and intensity over the long term (15-20 years). Proposed fuel treatments under all action alternatives can reduce some ignition risk, significantly reduce fuel loadings, and improve our ability to control fire.

Under either action alternatives, underburning would occur in 7 of the 52 acres proposed for treatment. Under Alternative 2, 36 acres would have lop and scatter fuel treatments with 9 acres of yarding tops. Alternative 3 would have 12 acres of lop and scatter fuel treatments with 33 acres of yarding tops. The roading option proposed under Alternative 3 provides for inexpensive top removal methods using cable yarding versus removing tops with helicopter yarding. Potassium levels in soils are the over-riding factor in choosing lop

and scatter over yarding tops in all cases. Yarding of tops is also identified where possible under Alternative 3 because of green volume associated with skyline corridors. The temporary road access to Unit 1 under this alternative would also provide a more defensible burn boundary for underburning in the unit. Overall, Alternative 3 would provide better fuels reduction within the harvest units than Alternative 2 because of the increase in yarding of tops. Both action alternatives would trend 7 acres toward long-range goals of restoring more historic stand densities and species compositions that would be more fire-resilient than is currently existing.

## Finances

### Table II-13. Comparison of net value, by alternative.

| Feature | Alt. 1 | Alt. 2 | Alt. 3 |
|---|---|---|---|
| Net value including planning costs | -$20,000 | -$11,308 | $26,483 |
| Net value without planning costs | 0 | $8,692 | $46,483 |
| 25% to counties | 0 | $4,658 | $14,979 |

The Forest Conservation Council identified a number of concerns related to the economic values of the proposed activities and forest management in general. Alternative 1 would not generate any revenues from the sale of timber to help finance fuels reduction and the vegetative restoration needs in this area. The net value of alternative 1 would be negative due to the planning costs associated with considering this project.

Although small in scope, either action alternative would contribute to the continuing operation of local mills, directly and indirectly enhancing the local and state economy through employment and tax revenues. Under Alternative 2, approximately 55% of the timber would be yarded by helicopter. Helicopter yarding is normally an expensive method, and would reduce the financial return both because of the higher cost to remove the timber and due to the loss of overbid as the result of reduced competition. However, local helicopter operatores have indicated interest in projects of this scope, and with helicopters currently in the area as a result of larger beetle-kill salvage operations, move-in costs for this project would be minimal.

Alternative 2 would generate enough funds to pay for the 7 acres of vegetative restoration (site preparation and burning). The project would not be required to finance the reforestation, since most of the timber being harvested is dead (Forest Service Handbook 2409.22, R1 Amendment 2409.22-97-2), but the project is capable of doing so. Alternative 2 would have a negative net value due to planning costs. This is partially due to the level of analysis currently needed to consider even a small scale project such as this. Alternative 2 represents the investment that is needed to salvage dead timber, treat fuels, and to do vegetative restoration per direction in the Forest Plan and Columbia Basin Assessment without doing any road construction.

Under Alternative 3, all timber would be removed using tractor, cable, and skyline yarding systems. No helicopter yarding would be involved. This alternative would provide a positive net value. Even with the cost of obliterating the temporary road and reconstruction of 1.2 miles of existing roadway, this alternative would provide over 3 times the return of Alternative 2.

## Watershed/Fisheries

Both the Forest Conservation Council and Ecology Center identified concerns related to water quality. At the tributary scale, no direct or indirect effects to beneficial uses are anticipated under any of the alternatives, including the No-Action Alternative. There would be no expected increase in sediment associated with stand treatment activities. There would be no expected increase in sediment with road construction and reconstruction under alternative 3. This is because the roads are located high on the slope on stable landtypes.

The only potential sediment generation would be associated with road maintenance which is a practice that would normally occur even under the no action alternative. The implementation of Best Management Practices and adherence with the Inland Native Fish Strategy standards and guidelines would provide protection for riparian habitat and control any sediment associated with planned stand treatment activities.

The cumulative effects from management activities most likely would not be measurable at this scale for increases in peak flows or sediment over what would occur under the No-Action Alternative. Increases in flow would be primarily due to the mortality of trees from the Douglas-fir beetle. Minor additional harvest to create conditions to allow site preparation and reforestation of low stocking sites would not result in a measurable increase in magnitude or quantity of flows for any of the alternatives. No measurable effects would occur in stream channel conditions.

The effects to fish would not be measurably different under any alternative. The Little Ucelly Heli Bug project would not affect fish populations or habitat conditions. The cumulative affect of all ongoing and reasonably foreseeable activities are likely to result in a long term reduction in risk of past management actions to populations.

Sediment Yield: There would be no measureable change in sediment yield in the Eagle Creek watershed with any of the alternatives.

Peak Flow: There would be no measureable change in peak flow with any of the alternatives.

Stream Crossings: There would be a reduction of 2 stream crossings within the Eagle Creek watershed as a result of ongoing and foreseeable activities. There would be no additional reductions with either of the action alternatives.

Sediment risk: There would be no additional change in sediment risk associated with either of the action alternatives.

Net Reduction in Roads: There would be a reduction of ¼ mile of riparian road within watershed as a result of ongoing and foreseeable activities. There would be no additional reduction with either of the action alternatives.

Net Encroaching Roads: There would be a reduction of ¼ mile ofencroaching roads in the watershed as a result of ongoing and foreseeable activities. There would be no additional reduction with either of the action alternatives.

Vegetation Removal in RHCA's: There would be no change in the amount of vegetation in Riparian Habitat Conservation Areas within the analysis area watershed.

Increased Fish Passage: There would be no change in the amount of fish passage in the analysis area watershed.

## Wildlife

The Forest Conservation Council and Ecology Center identified concerns related to wildlife and their habitat. Some of those concerns are addressed through the issues addressed in detail in Chapter III and summarized below. Others were addressed through design features or other aspects of the proposal. Please refer to Appendix A for a full response to their comments related to wildlife.

**Black-backed woodpecker**: The project includes design criteria intended to maintain a minimum number of snags distributed across the harvest units. These guidelines would retain snags in addition to the tremendous

number of snags that are being created by the Douglas-fir bark beetle across the region. There may be impacts to individual black-backed woodpeckers because harvest activities will reduce some of the habitat available for potential population increase that may occur due to the bark beetle infestation. However, under all alternatives, there would be an increase in habitat compared to if the beetle outbreak had never occurred. Therefore, the action alternatives may impact individuals but would not likely adversely affect the black-backed population.

**Flammulated owls**: The following table reflects the reduction in acres of capable and suitable flammulated owl habitat. There was no significant difference between canopy closure resulting from beetle activity and that of harvest. Therefore, the effects to canopy closure under all alternatives, including the No-Action Alternative, would be similar. However, the number and availability of snags is greater under Alternative 1 than under any of the action alternatives. The action alternatives also pose a risk of losing an undetected nest tree during implementation, although mitigation measures will be in place in the event that a nest tree is discovered prior to harvest.

Four acres of suitable habitat would be affected by any of the alternatives. Bark beetle mortality has affected these acres to the point that they are no longer considered suitable flammulated habitat. Three additional acres of suitable habitat would be affected by either of the action alternatives. The proposed salvage treatment in this area would still maintain suitable habitat but could alter the ability of these acres to provide suitable nesting habitat in the short term. At a minimum, snag retention in this 3 acre area would be increased to 6 of the largest dead trees per acre to maintain nesting habitat. Because of cumulative effects of past activities and a general shortage of habitat across the Coeur d'Alene basin, wildlife recommendation is to drop these 3 acres from harvest treatment under either action alternative.

One acre of capable habitat, proposed for treatment, is currently limited by canopy closure from becoming suitable habitat. The salvage of dead trees from this area is not expected to set back the time frames before this area becomes suitable habitat. The action alternatives may impact individuals but would not trend the species toward listing.

### Table II-14. Reduction in acres of flammulated owl habitat in the project area in comparison to the existing condition.

| Habitat | Existing | Alt. 1 | Alt. 2 | Alt. 3 |
|---|---|---|---|---|
| Capable | 501 | 0 | 0 | 0 |
| Suitable | 189 | -4 | -4 | -4 |

**Fisher**: Most of the beetle mortality in suitable fisher habitat is scattered and not concentrated in patches that would significantly impact habitat in potential fisher areas. Additional mortality associated with the Douglas-fir bark beetle in these areas is expected to be minor. The 1 acre of capable fisher habitat affected by beetles does have concentrated beetle mortality. This will open up that area setting back the period of time before it would achieve suitable habitat.

Under either action alternative, 3 acres of modeled fisher suitable habitat and 1 acre of capable habitat would be within treatment areas. The 3 acres of suitable habitat are located within a salvage unit. The salvage of the beetle-killed trees would still maintain over 50 percent canopy closure on the site so the salvage operation would still maintain adequate canopy to quality as fisher habitat. Salvage would however reduce some of the future down wood component that is an important component in fisher habitat. To mitigate for some of the effects of this salvage, these 3 acres would retain 6 of the largest standing dead trees per acre to ensure that a future large down wood component is retained on the site. The 1 acre in capable habitat is located within a proposed regeneration unit. This area has already been reduced below 50 percent canopy levels as a result of

bark beetles, so the regeneration treatment would not set back timeframes of this area from becoming suitable habitat.

Under Alternative 2, two earth-barriered roads would need to be opened to access this timber. Under Alternative 3, three barriered roads would need to be opened. None of these roads are brushed in. Purchaser would be required to install gates on these roads if opened for more than a two week period. Earth barriers would be returned upon completion of purchaser's use. Sale activities would result in an increase in disturbance but it would be short term.

Alternative 2 does not propose any new road construction or reconstruction. Under Alternative 3, 1.2 miles of road reconstruction and 0.2 miles of temporary road construction would occur. The 1.2 miles of reconstruction would be re-opening a roadway that is completely brushed in. However, this road does not go through either fisher suitable or fisher capable habitat. Approximately 0.2 miles of temporary road would occur through capable fisher habitat. This capable habitat is canopied. This alternative would be potentially more impacting than alternative 2 on fisher with increased roading access. However, with the planned front-end obliteration of the reconstructed road and the obliteration of the temporary road, this disturbance would be short term. Both action alternatives may impact individuals but would not trend the fisher toward listing.

### Table II-15. Reduction in acres of fisher habitat in the project area in comparison to the existing condition.

| Habitat | Existing | Alt. 1 | Alt. 2 | Alt. 3 |
|---|---|---|---|---|
| Capable | 511 | -1 | -1 | -1 |
| Suitable | 135 | 0 | 0 | 0 |

**Goshawk**: Of the 200 beetle-affected acres, approximately 7 acres are in suitable habitat, none are in capable habitat. Most of the beetle mortality in these areas is scattered and not concentrated in patches that would significantly impact habitat in potential goshawk areas. Under both action alternatives, 1 acre of modeled goshawk suitable habitat would be within a treatment area. The salvage of the beetle-killed trees would still maintain over 50 percent canopy closure on the site so the salvage operation would still allow the area to qualify as goshawk habitat in terms of canopy closure. Salvage would however reduce some of the standing dead and future down wood component that is an important component for the prey base of the goshawk. To mitigate for some of the effects of this salvage, the treatment unit (which is actually 3 acres in size) would retain 6 of the largest standing dead trees per acre to ensure a short term snag component and a future large down wood component. The roading proposed under alternative 3, though providing some increase in disturbance, would not influence goshawk suitable or capable habitat.

Mitigation measures enacted if a nest is found, in conjunction with the small scale and duration of this project, are expected to result in no effect to northern goshawk populations with either action alternative.

### Table II-16. Reduction in acres of northern goshawk habitat in the project area in comparison to the existing condition.

| Habitat | Existing | Alt. 1 | Alt. 2 | Alt. 3 |
|---|---|---|---|---|
| Capable | 365 | 0 | 0 | 0 |
| Suitable | 62 | 0 | 0 | 0 |

**Elk**: The Forest Plan goal for elk habitat potential in this Elk Habitat Unit (EHU) is 65 percent. The current level is at 62 percent. Under Alternative 1, there may be some loss of thermal cover due to the douglas fir beetle outbreak, and some areas where the increases in canopy openings would provide forage over time rather than cover. This would have a minor effect on elk, and would not be measurable enough to cause the elk habitat potential to change. There would be no loss of security beyond the existing condition. Cumulatively, there would be no change from the existing elk habitat potential.

Under Alternative 2, there would be a loss of some hiding and thermal cover beyond what bark beetles have done but it would be very minor because most of the timber planned for harvest is dead. There would be no new road construction or reconstruction under this alternative. There would be some loss of security during sale activities. During the sale, two earth-barriered roads (978A and 343) would be opened to allow access to harvest units and helicopter landing sites. These roads would be required to be gated, and closed at the end of daily activities, if either of these roads are opened for a period greater than 2 weeks. Earth barriers would be replaced after purchaser's use. The gate on Road 3019 is currently breached. This gate would be repaired and closed at the end of daily activities during the project use period.

Under Alternatives 3, there would be some additional loss of hiding and thermal cover, above what the bark beetles created and alternative 2, due to skyline corridors and right-of-way clearings. Otherwise unit treatments would remain the same as alternative 2. Alternative 3 would reconstruct 1.2 miles of roadway, most of which is completely brushed in. Approximately 0.2 miles of temporary road would also be constructed under this alternative. Road use would be similar as described under Alternative 2 except that three earth-barriered roads would need to be opened instead of just two. The same gating requirement would apply as described above. The reconstructed road would have a front-end obliteration after use to effectively close that road segment off after use. The temporary roadway would be obliterated. There would be a greater loss in security during sale activities with this alternative and the duration of disturbance, though still considered short-term, would be longer than under Alternative 2. However, post-sale conditions would return to the same security levels.

The elk habitat potential for EHU 3 would still remain at 62 percent, even during sale activities, under either action alternative (Project Files – Wildlife).

# CHAPTER III
# EXISTING CONDITIONS, ENVIRONMENTAL CONSEQUENCES

## FOREST VEGETATION

### Regulatory Framework

Federal legislation, regulations, policy and direction that require protection of species and population viability, evaluation and planning process consideration of threatened, endangered and other rare (Forest Service "sensitive") plant species include the Endangered Species Act (1973) as amended; the National Forest Management Act (1976); the National Environmental Policy Act (1969); Forest Service manual (2672.1-2672.43); Idaho Panhandle National Forests, Forest Plan (1987); and direction from the Regional Watershed, Wildlife, Fisheries and Rare Plants program and Washington Office.

Regulatory constraints applying to the management of timber resources include the Forest Practices Act, Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA), National Forest Management Act of 1976 (NFMA), and Forest Service policy.

RPA states, "It is the policy of Congress that all forested lands in the National Forest System be maintained in appropriate forest cover with species of trees, degree of stocking, rate of growth, and conditions of stand designed to secure the maximum benefits of multiple use sustained yield management in accordance with land management plans."

Plans will be developed which specify guidelines to identify the suitability of lands for resource management; provide for the diversity of plant and animal communities based on the suitability and capability of land areas to meet multiple-use objectives; where appropriate, to the degree practicable, preserve the diversity of tree species similar to that existing in the planning area; insure that timber will be harvested from National Forest System Lands only where soil, slope, or other watershed conditions will not be irreversibly damaged; the lands can be adequately restocked within five years after harvest; protection is provided for streams, stream banks, shorelines, lakes, wetlands, and other bodies of water where harvests are likely to seriously and adversely affect water conditions and fish habitat; and the harvesting system used is not selected primarily because it will give the greatest dollar return or the greatest unit output of timber.

Any cut designed to regenerate an even-aged stand of timber must be determined to be appropriate to meet the objectives and requirements of the land management plan and, in the case of clearcutting, is the optimum method; has had an interdisciplinary review of impacts and the cuts are consistent with the multiple use of the general area; will be shaped and blended, to the extent practicable, with the natural terrain; meets established, suitable size limits; and is carried out in a manner consistent with protection of soil, watershed, fish, wildlife, recreation, esthetic resources, and the regeneration of the timber resource.

NFMA amended RPA and requires that stands of trees shall generally have reached the culmination of mean annual increment of growth prior to harvest; this does not preclude the use of sound silvicultural treatments such as thinning and other stand improvement measures and also allows salvage or sanitation harvest following fire, windthrow, or other catastrophe or within stands in imminent danger of insect and disease attack.

Forest Service policy directs land managers to:

- *Use only those silvicultural practices that are best suited to the land management objectives for the area. Consider all resources, as directed in the appropriate forest plan.*
- *Prescribe treatments that are practical in terms of cost of preparation, administration, transportation systems, and logging methods.*
- *Monitor practices using procedures specified in forest plans to ensure objectives are met.*
- *Before scheduling stands for regeneration harvest, ensure, based on literature, research, or local experience, that stands to be managed for timber production can be adequately restocked within 5 years of final harvest. Five years after final harvest means five years after clearcutting, final overstory removal in shelterwood cutting, the seed tree removal cut in seed tree cutting or after selection cutting.*
- *Perform all silvicultural activities in the most cost-effective manner consistent with resource management objectives.*

Forest Service policy further directs that:

- *The size of tree openings created by even-aged silvicultural methods will normally be 40 acres or less. With some exceptions, creation of larger openings will require 60-day public review and Regional Forester approval.*
- *For management purposes, cut areas created by even-aged management will no longer be considered openings when both vegetation and watershed conditions meet management objectives established for the management area.*

Management activities will promote programs that provide a sustained yield of forest products consistent with the multiple-use goals established in Regional Guides and the Forest Plan. Timber management activities will be the primary process used to minimize the hazards of insects and diseases and will be accomplished primarily by maintaining stand vigor and diversity of plant communities and tree species.

Protection of timber stands from insect and disease problems will center on the silvicultural treatments prescribed for timber management activities.

Proposed activities will be consistent with Management Area objectives. Descriptions and objectives of these Management Areas are included in the Forest Plan.

# Methodology

## Existing Conditions

The information provided below comes from a variety of sources. The extent and location of current bark beetle infestations were based on aerial insect detection flights conducted in late summer of 1998 and 1999 and field reconnaissance during the summer of 2000. Information for National Forest System lands on habitat types, forest cover types, forest structural stage and past harvest activity are based on existing data bases (Timber Stand Management Record System, TSMRS), stand exam information, historical records and aerial

photo interpretation. Maps of forest cover types, habitat types and past harvest activity are available in the Project File (Vegetation).

### Environmental Consequences

Refer to the tables in Appendix B for unit-by-unit descriptions of harvest prescriptions, logging systems and fuels treatments proposed under each alternative.

The Geographic Assessment for the Coeur d'Alene River Basin found that the Eagle Creek drainage has moderate vegetative problems, but still maintains some areas with desirable attributes. (IPNF, 1998, pages 64-65). Species composition has changed dramatically from historical conditions with increases in Douglas-fir, grand fir and hemlock and corresponding reductions in the amount of white pine and larch.

Historic stand structures have also been altered. Shrub/seedling/sapling structural stages tend to occur in smaller stands and are scattered over larger areas as a result of timber harvests. On drier sites, fire exclusion has allowed invasion by Douglas-fir and grand fir into stands often historically dominated by ponderosa pine. Old forest structure has been reduced below historic levels and these stands have been further fragmented by harvests and road construction.

From a vegetation standpoint, the effects of the Douglas-fir beetle epidemic and resulting proposed harvest activities on species composition and stand structure will be used to determine environmental consequences. Because beetle populations are dropping, no attempt was made to incorporate future beetle infestation that may occur outside currently known locations into any alternative.

FRAGSTATS, a model used to analyze fragmentation and compare alternatives was not completed for this analysis because there were no significant differences in effects to forest structure between alternatives. Bark beetles and root disease created the change in stand structure in these areas, not the harvest treatments. FRAGSTATS is also designed for a larger scale analysis and would not be applicable to the scope of this project.

The reasonably foreseeable time frame for the beetle epidemic and activities associated with the action alternatives would be approximately two to three years.

## Affected Environment

### Introduction

The vegetation in northern Idaho is a result of the prevailing climatic pattern in which westerly winds carry maritime air masses from the northern Pacific across the northern Rocky Mountains during winter and spring. This weather pattern is characterized by precipitation, 30-55 inches, occurring mainly between November and February, with only 12 percent of the annual precipitation occurring between July and September (IPNF 1998). The inland maritime airflow provides northern Idaho with abundant moisture and moderate temperatures.

The subbasins of northern Idaho contain diversity of habitats and plant communities, many of which contain plant species that are known or thought to be rare. Of the estimated 1,200 to 1,500 plant species known or thought to occur here, about 10 percent are considered rare or uncommon. There are no federally listed endangered plants for the IPNF. Two species are listed as threatened for the IPNF, water howellia (*Howellia aquatilis*) and Ute ladies'-tresses (*Spiranthes diluvialis*). There are no documented occurrences of these species although suitable habitat is thought to occur. There is a third species, Spalding's catchfly (*Silene*

*spaldingii*), that is being considered for listing as threatened for the forest. This too has no documented occurrences although suitable habitat is thought to occur on the IPNF. Thirty-one species of sensitive plants are known or suspected to occur within the sub basin (see TES plants –Project Files).

## Habitat Types

The vegetation in the Coeur d'Alene subbasin reflects the climatic conditions discussed above. "Habitat typing" is a land classification system based on the potential climax natural vegetation that could occupy a site. Habitat types are used to characterize plant communities, successional development, and potential. Habitat types are named for the potential climax community type or plant association, which is denoted by the climax tree species (usually the most shade tolerant tree adapted to the site), and the dominant or indicator undergrowth species of the plant association (Cooper et al. 1991). The climax tree species denoted in a habitat type is not necessarily dominant or even present on the site. A very high percentage of forested landscapes reflect some degree of disturbance resulting in a preponderance of seral stages. Forest Habitat Types of Northern Idaho: a Second Approximation (Cooper et al. 1991) was the basis for determining habitat types in the Coeur d'Alene sub basin.

Within the project area, the most common habitat types are grand fir/queencup beadlily and western hemlock/queencup beadlily, which account for approximately 38 percent and 36 percent respectively. Grand fir/ninebark and Douglas fir/ninebark are present on 14 percent and 10% respectively. The remaining 2 percent is made up of western hemlock/ginger and an area that is listed as unknown in the data base.

Threatened and sensitive plants and Forest species of concern can be assigned to one or more rare plant guilds. These guilds are artificial assemblages based on similar habitat requirements used for the purpose of analysis. For the Idaho Panhandle National Forests, the rare plant guilds are aquatic, deciduous riparian, peatlands, cold forest, wet forest, moist forest, dry forest and subalpine. Rock seeps and springs are another habitat that can support certain sensitive plants, however these can occur across all guilds and are not identifiable at a coarse scale (see Project Files – TES Plants for specific plant guild descriptions).

## Habitat Type Groups

Although every habitat type is unique in some way, they can be grouped based on similarities in natural disturbance regimes, successional patterns and structural characteristics of mature stands (USDA Forest Service, Region One, 1997).

The majority of the habitat types within the project area (74%) are in the Moderately Warm and Moderately Cool Moist Habitat Type Group. The remaining falls into the Warm and Dry Habitat Type Group.

### *Moderately Warm and Moderately Cool Moist Habitat Type Group*

The habitat types of this group within the Little Ucelly Heli Bug project area consist primarily of grand fir/queencup beadlily and western hemlock/queencup beadlily. The current forest cover types are dominated by grand fir and Douglas-fir. Western white pine is the cover type for about 10% of the area. It is primarily associated with regeneration units. Prior to the introduction of blister rust, with over 50 percent of these areas dominated by white pine, the area was known as the "white pine type." Currently, 12 percent of the Little Ucelly project area is classified as western white pine forest cover type. Historically, these habitat types had fire-free intervals of 50 to over 200 years or more (Zack and Morgan 1994). Stand replacement fires, while infrequent, could be severe during times of drought. This habitat type group covers about 74% of the project area. Sensitive plants associated with the moist and wet forest guilds are most likely to be located within this habitat type group.

### *Warm, Dry Habitat Type Group*

Within the Little Ucelly Heli Bug project area the habitat types of this group consist primarily of grand fir/ninebark and Douglas fir/ninebark type, on 24% of the project area. The current forest cover types in this habitat type group are dominated by Douglas fir with small amounts of grand fir and white pine. Historically, many of these sites were maintained by periodic fire in open-grown stands of ponderosa pine and Douglas-fir with grass and brush understories (USDA Forest Service, Region One, 1997). The natural fire-free interval was approximately five to 50 years for underburning and 50-200 years for stand replacement. Stand replacement fires were relatively infrequent under natural disturbance regimes. Sensitive plants associated with the dry forest guild are most likely to be located within this habitat type group. There is 2% of the project area where the habitat type is unknown, though it likely falls into the dry group.

## Coeur d'Alene River Basin Geographic Assessment

The condition descriptions identified by the Geographic Assessment were used to characterize the project area. Findings of the Geographic Assessment, at least in relation to vegetation disturbance, are very similar to more broad-scale conclusions found at the Columbia Basin and Northern Region scales:

1. *Disturbance and successional regimes have been altered since the Euro-settlement in North Idaho.*

2. *There has been a substantial reduction in the percent of the landscape composed of early seral species such as western white pine, ponderosa pine, and larch. This is primarily because of natural succession as a result of fire suppression, timber harvest and the introduction of white pine blister rust.*

3. *There has been a major reduction in old growth forest structure while intermediate aged forest has increased dramatically. This is primarily the result of timber harvest focusing on older trees, fire suppression and the introduction of white pine blister rust.*

4. *Landscape patterns have been modified by timber harvest and exclusion of fire. Current landscape patterns are more uniform. Old growth patches are smaller in size. Approximately the same percentage of the landscape is in openings but the openings are more numerous, smaller in size, and scattered across the watersheds.*

The purpose of the Geographic Assessment was to develop a scientifically-based understanding of the processes and interactions occurring in the project area, so that activities can be developed to promote healthy ecosystems. In order to maintain healthy, sustainable ecosystems, it is important that species are well-adapted to the environmental variability inherent in the ecosystem and to maintain forest structures necessary to support ecosystem diversity and productivity. This is consistent with the Columbia Basin Assessment (ICBEMP) and the Northern Region Assessment. The Geographic Assessment suggests converting shade-tolerant/drought- and fire-intolerant species to shade-intolerant/drought- and fire-tolerant species. The project interdisciplinary team considered these recommendations as they developed the proposed alternatives.

## Disturbance and Successional Patterns

***Fire:*** Historically, the major disturbances within the project area would have been large stand replacing fires that occurred at intervals of 200 or more years (IPNF, 1998). Low and mixed severity fires were common but would seldom remove canopies and regenerate stands. This disturbance pattern would have created large

patch sizes that would often develop into mature or old growth forests. Following intense disturbance, these stands would have gone through grass/forb and shrubs stages prior to the sites being dominated by trees again. The tree species that dominate the site following disturbance would have been dependent on the species present prior to the fire, the fires intensity and its extent. Assuming early seral species were present prior to the fire; species such as lodgepole pine, larch, white pine and Douglas-fir would dominate most sites initially. As crown closure became complete, regeneration of shade intolerant species would cease. Shade tolerant grand fir, hemlock, western redcedar and Douglas-fir (on the drier sites) would be present and survive as understory vegetation for long periods of time. In the absence of further disturbance the short lived lodgepole pine would begin to decline and the long lived seral species such as white pine and western larch would dominate the stands. As the long lived serals age and decline in vigor, they would become susceptible to insects and diseases. In the past, mountain pine beetles played a major role in killing individual trees and groups of white pine (IPNF, 1998). Holes created in the canopy by the death of these overstory trees would likely be filled by the shade tolerant understory species. In the absence of further disturbance, climax forests of shade tolerant overstory and understory trees might be attained although remnant, large trees of seral species might remain a component for many years.

Low and mixed severity fires that occurred between the major stand replacement events would help to perpetuate the long lived seral species by removing competing, shade tolerant species from the understory. Where these mixed severity fires did create small or moderate sized openings in the canopy; early seral species were likely to regenerate. These types of fires have been largely eliminated by aggressive fire suppression efforts instituted since the 1930's.

***Logging:*** A portion of the Little Ucelly project area was burned during the 1889 and 1910 fires. The remainder of the area has not had a stand replacement fire since the 1700's or 1800's. Therefore, there was likely an abundance of large white pine. The mining industry developed the surrounding area in the 1800's. Population growth in the area likely resulted in timber extraction for construction of dwellings. The logging industry was likely attracted to the white pine in this area during the first half of the 20$^{th}$ century. There are few records of these early harvest activities but they were generally quite selective, removing only the large pine and larch and leaving stands of likely poor quality hemlock and grand fir. The exception to this was along the streams where most trees were often removed to build flumes or splash dams, or just to make it easier to transport logs. Where white pine did regenerate, it was susceptible to blister rust with few trees surviving to maturity. More intensive management began in the late 50's with clearcutting, seed tree, and shelterwood harvests that tended to fragment the landscape into smaller patch sizes. Salvage of the remaining white pine often took place between harvest units. Most areas regenerated since the late 1970's have been planted with white pine, western larch and/or ponderosa pine. Prior to that time very little white pine was planted since blister rust was likely to kill the seedlings and disease resistant stock was not available. Douglas-fir was the preferred species since seed sources were readily available and the species grew well, although larch was also planted to some extent. The problems associated with root disease that develop in these stands as they mature were not recognized at the time.

***Root Disease:*** Historically, root diseases were significant factors in reducing the competition from Douglas-fir and grand fir to maintain western white pine, western larch and, on some sites, ponderosa pine. Douglas-fir tended to regenerate readily in the early stages of stand development, but dropped out as a significant component due to high rates of root disease caused mortality (Byler and Zimmer-Gorve 1990). Western white pine, ponderosa pine and larch have a high level of resistance and were able to capitalize on this reduced competition. Fire exclusion and the loss of these species through logging and blister rust have reduced the opportunity for early seral species to become established in root disease areas. Because of the preponderance of susceptible species and the lack of other trees resistant to it, root disease is currently the most prominent landscape-altering process within the project area and the entire Coeur d'Alene basin (IPNF 1998).

***Douglas-fir Beetles:*** Douglas-fir beetles have always been present throughout the Coeur d'Alene subbasin. The presence of root disease in many of the Douglas-fir forest types has resulted in high endemic levels of the Douglas-fir beetle and the propensity for rapid beetle population build ups during favorable conditions (Lockman and Gibson 1998). Douglas-fir beetle outbreaks occur following disturbances such as windfall, snow breakage or fire. In particularly dry years, insect infestations and mortality could increase dramatically. Short-term increases in fuel loading may have led to increased crowning of moderate severity fires and created small to large openings for the reintroduction of seral species. In some cases, these insect infestations may have contributed to large stand replacing fires (IPNF 1998).

***Loss of White Pine:*** White pine blister rust was unintentionally introduced into this area in the early 1900s. Eventually, white pine was infected over the entire Coeur d'Alene subbasin; trees were either killed or there was an accelerated harvest to recover their economic value. The loss of mature white pine and the continuing mortality of younger trees led to the increase in Douglas-fir, grand fir and hemlock.

## Existing Conditions

The findings of the Geographic Assessment for the Coeur d'Alene River subbasin indicate that there has been a considerable change in both species composition and stand structure within the Little Ucelly project area.

Long-lived seral species (western white pine and western larch) have declined within the Coeur d'Alene subbasin as a result of white pine blister rust and timber harvesting that tended to remove these species while leaving species such as grand fir, hemlock and Douglas-fir. On the drier sites, aggressive fire suppression has allowed the encroachment of Douglas-fir and grand fir into the understories, creating much denser stands over larger areas and increasing the potential for stand replacing fires.

The early logging to remove white pine, continued salvage efforts, and white pine blister rust have combined to effectively eliminate white pine as an important forest cover type in this area. Historically, white pine was probably the dominant cover type on 50% of the Coeur d'Alene basin. Based on habitat types in the Ucelly project area, 50% is a likely historical figure for that area as well. In comparison, white pine is currently the dominant cover type on approximately 12% of the project area. Much of that component is associated with planted stock in past regeneration harvests.

In terms of forest structure, the greatest changes have been in the amount of old growth and pole/medium-sized timber found on the landscape. Old growth has declined from a historic average of about 21 percent of the area (Geographic Assessment, page 39) to zero in the project area. This was generally the result of the aggressive harvest of white pine and larch and the loss of white pine to blister rust. Stands of grand fir and Douglas-fir that have replaced white pine and larch in the ecosystem are very susceptible to root disease and insect attack. These stands are unlikely to provide the same closed canopy, multi-storied mature and old forest structure containing large white pine and larch that was once a major component of the project area. Although the current stands may contain large old trees and provide some old growth characteristics, openings caused by root disease may be common, and a key component of the remnant white pine and larch will be missing.

Douglas-fir, grand fir and western hemlock were, historically, the dominant cover types on about 30% of the Coeur d'Alene basin. The project area currently has 81% of the area in fir and hemlock cover types. This shift in species composition has also created a shift in insect and disease problems. Shade tolerant species such as grand fir, Douglas-fir, and western hemlock are more susceptible to root diseases than early seral species like larch and white pine. The dramatic increase in the shade tolerant species has been accompanied by a dramatic increase in root diseases.

The current Douglas-fir beetle outbreak began in Douglas-fir damaged by wind, snow and ice during the winter of 1996-97. Salvage operations removed some of this downed material but Douglas-fir beetles were able to develop brood in many down trees and the bark beetle populations increased dramatically. The 1999 insect and disease flight found 63,100 acres of National Forest land within the CDA River Ranger District with some level of Douglas-fir beetle infestation. Some of these areas are currently being harvested as part of the Douglas-fir Beetle Project EIS or proposed under the Small Sales EIS. Within the Little Ucelly Heli Bug project area, approximately 200 acres were identified with Douglas-fir beetle mortality. In most cases the mortality caused by the beetles is relatively light and scattered but in some stands or portions of stands the mortality is heavy. Ice and snow damage within the project area was generally light. The presence of the Douglas-fir beetle within the project area is most likely the result of subsequent beetle flights, carried on winds from infestation areas to the west.

The Douglas-fir beetle prefers larger diameter, mature trees (Schmitz and Gibson 1996, Flanagan 1998) and the results of sampling completed on the IPNF for the 1998 flight indicate an average diameter of attacked trees of 18.5 inches (Kegley et al. 1999). The effects and extent of this outbreak were exacerbated by hot and dry weather during 1998. Over 85 percent of the trees attacked by the beetles in 1998 are dead or dying (Kegley et al. 1999). For trees attacked by beetles in 1999, this percentage dropped to about 71 percent (Kegley, 2000). This successful attack rate again approximated 74 percent in 2000 (Kegley, 2001). Eventually this success attack rate is expected to stabilize as beetle populations return to endemic levels, although annual weather conditions could affect this rate.

The Douglas-fir beetle mortality will create "openings" of varying sizes across the landscape. An "opening" is defined as a forest stand, group of stands or portion of a stand where bark beetles, in conjunction with other agents such as root disease and snow or ice damage, kill more than 50 percent of the existing canopy. Within the project area these openings are generally small, ranging from 1 to 5 acres in size.

The peak year of the beetle epidemic was probably in 1998, but additional mortality occurred in 1999 and 2000. Beetle populations tend to decrease rapidly when down and/or damaged trees are no longer available in large numbers.

Based on aerial detection flights and field surveys (Coeur d'Alene River RD 1998, 1999), there are currently approximately 200 acres that have mortality caused by Douglas-fir beetle within the project area. There may have been some areas where trees attacked in 2000 were not yet showing symptoms and were therefore not mapped. Many of these acres have light infestations but some areas have been heavily attacked.

The structural stage categories listed in the table below are quite broad and are based on stand age. The shrub/seedling/sapling stage includes forest stands that are less than 35 years old. In this area, these stands have resulted from past regeneration harvests. These stands may consist of seedlings less than one year old or trees planted in clearcuts in the late 1960's that are now over 30 feet tall. Most of the young stands in this area no longer have a large tree component although there were a few shelterwood harvests.

The pole and small-to-medium timber structural stage consists of stands that are 36 to 100 years old. These stands may represent natural regeneration left after selective removal of the large, valuable overstory trees or may have resulted from smaller fires or timber harvest in the early part of this century. Many of these stands are quite dense with high stocking levels; but some are rather open, particularly where commercial thinning harvests or mortality from root disease has taken place.

The mature, large timber structural stage includes stands of trees that are 100 to 150 years old. These stands generally resulted from fires prior to 1900 and are quite varied in appearance. Stand conditions may be quite open as a result of past harvest activity, root disease, fire or soil conditions. Stands unaffected by these events will be dense with fairly closed canopies.

The old forest structure includes stands of trees that are over 150 years old that resulted from fires or other natural disturbance prior to 1851. These areas have often been highly fragmented by past regeneration harvests, and existing stands will vary in composition and canopy closure based on past harvest activity, root disease, fire or soil conditions.

There is very little detailed information on areas harvested prior to the 1950s. Therefore, the tables do not include acres harvested prior to this time. Also, many areas have had more than one harvest entry, particularly commercial thinning and sanitation/salvage harvests. Harvest acreages used are based on the TSMRS database.

The Little Ucelly Heli Bug project area encompasses approximately 1,756 acres, all of is National Forest System lands. About 26% (448 acres) of the project area is less than 35 years old. Generally these stands are the result of the regeneration harvests most of which occurred in the 1980's. Approximately 27% (478 acres) is 35 to 100 years old. These stands generally range from pole to immature sawtimber size classes. Around 47% of the area (830 acres) is in stands that are 100-150 years old. This is considered mature sawtimber. There is no old forest structure or allocated old growth within the project area. However, there are numerous allocated old growth stands south, east, and north of the project area (Project Files – Vegetation). The project area is included in portions of 3 old growth analysis units, 10, 12, and 16. Old growth unit 10 contains 19.5% allocated old growth. Old growth units 12 and 16 contain 11.0% and 10.8% allocated old growth, respectively.

### Table III-1. Vegetative conditions in the Little Ucelly Heli Bug project area.

| **Habitat Type Group** | **Approximate Acres** | **% of Forest Lands** |
|---|---|---|
| Warm/Dry (Groups 3) | 453 | 26 |
| Moderately Warm and Moderately Cool/Moist (Groups 4 and 5) | 1303 | 74 |
| **Forest Cover Types** | **Approximate Acres** | **% of Forest Lands** |
| Douglas fir | 734 | 42 |
| Grand fir | 657 | 37 |
| White pine | 205 | 12 |
| Ponderosa pine | 66 | 4 |
| Western hemlock | 33 | 2 |
| Western larch | 28 | 1 |
| Cedar | 20 | 1 |
| Lodgepole pine | 10 | 1 |
| **Structural Stage** | **Approximate Acres** | **% of Forest Lands** |
| Shrubs/Seedlings/Saplings | 448 | 26 |
| Poles/small-medium timber | 478 | 27 |
| Mature/large timber | 830 | 47 |
| Old Forest | 0 | 0 |
| Allocated old growth | 0 | 0 |
| Recruitment old growth | 0 | 0 |
| **Past Timber Harvest and Fires** | **Approximate Acres** | **% of Forest Lands** |
| Clearcuts | 253 | 14 |
| Seed Tree & Shelterwood | 39 | 2 |
| Overstory Removal | 332 | 19 |
| Sanitation/Salvage | 663 | 38 |
| Commercial Thinning | 0 | 0 |
| Selection Harvest | 0 | 0 |
| Fires since 1950 | 0 | 0 |

There are approximately 253 acres of clearcuts, 39 acres of shelterwood harvests, 332 acres of overstory removal and liberation harvests, and 663 acres of salvage harvest, that the data base is tracking as having occurred within the project area. Areas harvested between 1900 and 1950 are likely not be included in these figures. Harvest associated with that time period was likely associated with individual tree selection of primarily white pine. Many stands likely have had several selection harvest entries over time.

The most recent harvests occurred in 1996 under the Lower Eagle II Salvage sale. Individual tree salvage harvest was the primarly treatment with this timber sale. Most of the regeneration harvest treatments in this area occurred in the late 1980's. There have been no fires in recent history that would have altered stand structure, although there have been numerous small lightning fires.

## Environmental Consequences

### Effects Common to All Alternatives

For all alternatives, the number of acres affected by Douglas-fir beetles will remain the same. The extent of bark beetle activity is based on aerial flights and on-the-ground surveys.

Typically, Douglas-fir beetle outbreaks last 3 to 4 years. Although there may be some additional mortality in 2001, bark beetle populations are expected to drop back to endemic levels within the next few years. The actual severity of future attacks can be greatly influenced by weather and predicting exactly which stands will attract the beetles is difficult since they are strong fliers and can move several miles. Based on aerial detection flights, initial bark beetle attacks in 1998 were usually associated with areas that sustained ice and snow damage in 1996-97. Beetle mortality within the Little Ucelly project area is believed to be the result of subsequent beetle flights away from initial infestation areas.

### Effects Common to Both Action Alternatives

For all the action alternatives, proposed activities would not reduce the beetle populations. Bark beetles have already flown from most trees proposed for harvest and it is unlikely that trees with current infestations could be harvested before the beetles leave to attack other trees.

Although green trees would be removed in some stands for some alternatives, this would not create changes to the structural stage category beyond that caused by the bark beetles and it would be minor in nature.

At this time, there is no known literature displaying further infestation from Douglas-fir beetle-infested timber that has been transported to milling facilities. Although no literature exists, other species of beetles transported in timber to milling sites have been known to be a source for the spread of beetle activity. In the proposed alternatives, most trees to be removed would be dead Douglas-fir trees from which the beetles have emerged prior to logging activities. Because of this, there would be no spread of Douglas-fir beetles. A small portion of the trees removed could be infested with beetles and larvae at the time of removal and would be transported to mill sites. Prior to the beetles' emergence from the timber, most logs would be processed (i.e. debarked), which would kill the beetle and larvae.

## Direct and Indirect Effects

### *Alternative 1- No Action*

There would be no harvest of the trees killed by Douglas-fir beetle or weakened by other pathogens under this alternative. Douglas-fir mortality generally occurred in groups as the pheromones synthesized by the beetles attracted more beetles to the initial location. This led to mass attacks where most of the large Douglas-fir trees were killed. In most cases these groups of dead trees were less than one acre in size but in some cases, all large Douglas-fir were killed over areas 2-3 acres in size. Smaller diameter trees sometimes were also attacked when they occur near these groups, especially in denser stands.

Stands affected by the beetle may experience a change in species composition, most often to a climax tree species, and changes in stand structure to a younger age class or a more open canopy. There are expected to be shifts in stand species composition due to mortality caused by bark beetles, but these shifts are not expected to increase the early seral species component. In most stands where over 50 percent of the basal area is killed by Douglas-fir beetles, the dominant overstory species following the beetle infestation is likely to be grand fir. In the absence of further disturbance these stands are likely to regenerate to Douglas-fir and grand fir, so there would be no long-term shift in species composition.

Mortality of less than 25 percent of the basal area of a stand would not impact stand structure class. Because beetles tend to kill trees in groups, it is likely that any holes in the canopy are small and will quickly regenerate with shrubs or shade-tolerant species. Stands in which 26-50 percent of the basal area has died will have a more open appearance once the dead trees fall to the ground. Again, canopy openings are small and will regenerate quickly. In stands where 50-100 percent of the basal area has been killed by bark beetles, the results tend to be more dramatic. Groups of trees killed by the beetles combine, and more of the associated small diameter Douglas-fir may be attacked. The entire stand would have a more open appearance. The understory vegetation becomes more dominant and the stand structure reverts to a shrub/seedling/sapling structural stage. These larger openings generally retain groups of trees and scattered individual trees that have been unaffected by the bark beetle infestation.

Based on aerial detection flight maps and ground reconnaissance, it is estimated that approximately 200 acres of National Forest System lands within the project area have incurred some mortality due to the current bark beetle epidemic. Some of this mortality will have little impact on stand structure. Approximately 20 acres are projected to have a substantial (greater than 50 percent of the stand basal area) loss of forest tree cover due to the beetles. Natural regeneration of shade-tolerant species is expected to occur in these more heavily impacted areas, but there would be no change to the desired early seral species composition. Early seral species would not regenerate on the site because the seed source is generally lacking and ground conditions would not be favorable to their establishment without additional treatments. As dead trees decay and begin falling to the ground there will be an increase in fuel loading that could effect fire intensity. In some areas mortality is relatively light and there will be little increase in the potential for severe fires. However, where there is moderate to high mortality, the increase in fuel loading as the dead trees fall to the ground and the fuel ladder created by regenerating Douglas-fir and grand fir will increase the risk of stand replacing fires.

### *Alternative 2*

From a vegetation standpoint, the objective of this alternative is to harvest dead and dying trees in areas attacked by bark beetles. In stands where bark beetles have killed a substantial portion of the basal area of the stand, and a logical regeneration treatment area exists, the objective is to restore long-lived seral tree species such as white pine, western larch and ponderosa pine. Not all beetle-killed patches in the project area would

be treated. Some patches of beetle-killed trees would be retained for wildlife habitat or would be retain in Riparian Habitat Conservation Areas (RHCA) for woody debris recruitment.

In stands where beetle mortality are generally light, harvest treatment would salvage trees killed by bark beetles and associated trees fading to root disease or other pathogens. Three areas ranging from 1 to 13 acres in size would be scheduled for this salvage type treatment for a total of 45 treatment acres. For more information see Chapter II, Description of Alternatives. The effect of these salvage units would result in no change species composition on these sites. Most of the salvage treatment areas would not change stand structure class. However, approximately 13 acres of salvage treatment would result in a change of stand structure to brush/seedling class as a result of the beetles. These acres are not planned for regeneration treatments due to location, existing mixed species regeneration, or due to soil conditions. The amount of standing deand and future down wood component would be reduced on these sites by the individual tree selection harvest treatments.

In stands where beetle mortality is more severe (over 50% loss of basal area) regeneration harvest would be used if appropriate. These regeneration treatments would be group shelterwood or seed tree depending on the amount of healthy overstory remaining. These areas would be underburned to consume logging slash, reduce competing vegetation, and prepare the sites for planting of white pine, larch, and ponderosa pine. There are two areas where regeneration harvests would occur ranging from 3 to 4 acres in size for a total of 7 regeneration treatment acres. For more information on this harvest treatment see Chapter II, Description of Alternatives. The effects of these regeneration units would not change forest structure since the bark beetles have already done that. Species composition would be changed by introducing pines and larch back into these ecosystems instead of allowing them to regeneration naturally back to their current species composition.

This combination of salvage and regeneration treatments may reduce rates of spread, fire intensity, and fire severity on these sites over the long term and reduce the potential for stand replacing fires in this area.

### *Alternative 3*

The vegetative objective of this alternative is the same as described in alternative 2. Harvest treatments and prescriptions would remain the same. The difference under this alternative would be the loss of an additional green tree component as a result of corridors needed to reach beetle-killed timber. These corridors would be needed to reach into treatment units from existing or planned roadways. This alternative would allow for conventional yarding methods so that more expensive helicopter yarding would not be necessary. Loss of green timber would also be associated with right of way timber on planned temporary road construction. Approximately 17% additional timber volume, most of it green, would need to be harvested to implement this alternative. These trees are associated with yarding corridors, approximately 12 feet wide, or road right of way clearings, approximately 25 feet wide. There would be no change to forest structure or species composition with the stands that are affected by these narrow openings.

## Cumulative Effects to Forest Vegetation

The following table provides summary information on how each alternative would affect stand structure and species composition within the Little Ucelly Heli Bug project area. "Existing Condition" for Structural Stage and Cover Type incorporates all past activities that have occurred over the landscape, such as timber harvests, planting and fires. Generally, ongoing activities are included in the existing condition. Changes shown to existing condition under each alternative would be the result of the proposed action and also of other reasonably foreseeable future actions if occurring within the vegetative analysis area.

**Table III-2. Approximate acres of structural stages and cover types, Little Ucelly Heli Bug Project area.**

| | Existing | | No Action | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|---|---|
| ***Structural Stage*** | **Appx. Acres** | **%[1]** | **Appx. Acres** | **%[1]** | **Appx. Acres** | **%[1]** | **Appx. Acres** | **%[1]** |
| Shrub/Seedling/Sapling | 448 | 26 | 468 | 27 | 468 | 27 | 468 | 27 |
| Pole/Small-medium Timber | 478 | 27 | 477 | 27 | 477 | 27 | 477 | 27 |
| Mature/Large Timber | 830 | 47 | 811 | 46 | 811 | 46 | 811 | 46 |
| Old Forest | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Allocated old growth | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Recruitment old growth | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ***Cover Type*** | | | | | | | | |
| Douglas-fir | 734 | 42 | 734 | 42 | 731 | 42 | 731 | 42 |
| Grand fir | 657 | 37 | 657 | 37 | 654 | 37 | 654 | 37 |
| Western White Pine | 205 | 12 | 205 | 12 | 212 | 12 | 212 | 12 |
| Ponderosa Pine | 66 | 4 | 66 | 4 | 66 | 4 | 66 | 4 |
| Western Hemlock | 33 | 2 | 33 | 2 | 33 | 1 | 33 | 1 |
| Western Larch | 28 | 1 | 28 | 1 | 28 | 1 | 28 | 1 |
| Cedar | 20 | 1 | 20 | 1 | 20 | 1 | 20 | 1 |
| Lodgepole Pine | 10 | 1 | 10 | 1 | 9 | 1 | 9 | 1 |
| Mtn. Hemlock/Subalpine fir | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cottonwood | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Non-Forest | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*1 Percentage of National Forest Land within this project area.*

As can be seen from the table, changes in stand structure and species composition as a result of the proposed alternatives would affect only about 1 percent of the project area. This is to be expected since the project is small in scope. There is no change to stand structure between any of the alternatives because the change was brought about as the result of bark beetle mortality. There would be a 7-acre increase in the white pine cover type under both action alternatives as a result of regeneration treatments. White pine, larch, and ponderosa pine would be planted in these areas but white pine is expected to be the major component. This represents less than a 1 percent change but would still trend the long term species composition in the direction recommended by the Interior Columbia Basin Assessment and the Forest Plan.

Site-preparation burning and planting shown under Prichard Peak timber sale will improve stocking levels in a previously treated stand but will not change stand structure or species composition. Part of this area is planned for opening for preferred fuelwood gathering but this will have no impact on stand structure or species composition. There is no private or other agency lands within the project area, however there is private ownership immediately adjacent. The private land in the West Fork of Eagle Creek is planned for subdivision and development. This is expected to result in some loss of forest vegetation on these lands, but short-term effects would be minor since much of this area has been cleared for many years.

### *Cumulative Effects of Alternative 1*

Currently, 13 percent of National Forest System lands within the project area are dominated by early seral species, in this case mostly white pine, compared to an historic level of over 50 percent for the Coeur d'Alene basin. Alternative 1 would not increase the acres of early seral species.

Currently, 46 percent of National Forest System lands within the project area are in mature structural stages, which is in line with historic levels of 46 percent for the Coeur d'Alene sub basin. These stands are generally

dominated by Douglas-fir, grand fir and hemlock while historically these stands would have had a substantial component of white pine and larch with some ponderosa pine in the drier sites.

There are no acres of allocated and/or recruitment old growth within the project area. Therefore the bark beetle infestation did not affect old growth structure within the area. Several of the allocated old growth stands outside of the project area have been affected by beetle mortality.

*Cumulative Effects of Alternative 2*

Early seral species would be planted on approximately 7 acres (13 percent of the harvest acres) following harvest and site preparation burning. These stands would be more likely to provide a long-term improvement in stand structure, since early seral species are less susceptible to root disease than Douglas-fir and grand fir. Additionally, 45 acres (87 percent of the harvest acres) would be salvage harvested to remove dead and dying trees. This type of harvest would not improve seral species composition. Most of the salvage treatment areas would not change stand structure class. Salvage and regeneration treatments would reduce risk of stand replacing fires on and adjacent to the treatment areas. There would be a reduction in standing dead and future down wood component over the 52 treatment acres.

Timber harvest and associated reforestation efforts would improve species composition on less than 1 percent of National Forest System lands within the project area. There would be no reduction in mature forest structure beyond that caused by the current beetle infestation under this alternative.

*Cumulative Effects of Alternative 3*

The difference under this alternative would be the loss of an additional green tree component as a result of corridors and right-of-way timber needed to reach beetle-killed timber. There would be no change to forest structure or species composition as a result of this corridor and right-of-way timber at the stand level. Changes as a result of treatment units would be the same as described under Alternative 2.

*Cumulative Effects of Opportunities Under All Alternatives*

Any watershed restoration sites would eventually provide forest cover, although they would be likely to go through a prolonged period of grass, forb and/or shrub dominance. Closure of the road under consideration is not expected to significantly restrict access to the area for pruning or precommercial thinning needs. Ecosystem burning of approximately 3 acres between units 9 and 10 may result in some timber mortality but it is expected to be minor. Burning would reduce the brush competition and would likely result in an increase in regeneration, although early seral species would likely not become established unless the area is planted, since seed source is lacking. Direct control of noxious weeds and management practices designed to prevent their spread or introduction to additional areas would improve the potential for natural vegetation to colonize disturbed sites but would probably not affect forest tree vegetation.

## Consistency With the Forest Plan and Other Applicable Regulatory Direction

Forest Plan direction (Forest Plan, Chapter II, page II-8) provides that timber management activities will be the primary process used to minimize the hazards of insects and diseases and will be accomplished by maintaining stand vigor and diversity of plant communities and tree species.

In the stands proposed for treatment, harvest is primarily associated with the removal of dead and dying trees. This is consistent with Forest Plan direction for stands which are "substantially damaged by fire, wind throw,

insect or disease attack, or other catastrophe may be harvested where the salvage is consistent with silvicultural and environmental standards."

Regeneration harvests are proposed for most stands in which the majority of the basal area of the stand has been lost to bark beetles. Following site preparation, regenerated stands would be planted with seral species (white pine, larch, and ponderosa pine) to promote stand structures and species composition that reduce susceptibility to insect and disease damage. This is consistent with forest plan direction that "regeneration with species combinations that are least susceptible to root disease is the primary protection objective for the root rot diseases" and that "reforestation will feature seral tree species." All stands proposed for regeneration harvests are on lands suitable for timber production and can be adequately restocked within 5 years of the final harvest. In accordance with Forest Plan direction, stands would be regenerated with trees from seed that is well adapted to the specific site conditions and will be regenerated with a variety of species.

There are no stands scheduled for treatment under this proposal where clearcutting was considered the optimal silvicultural treatment for the stand.

Forest Service policy requires public review and Regional Forester approval, with some exceptions, if even-aged silvicultural methods create openings exceeding 40 acres. The Forest Plan states “openings created by even aged silviculture will be shaped and blended to forms of the natural terrain to the extent practicable; in most situations they will be limited to 40 acres. Creation of larger openings must conform with current Regional guidelines” (Forest Plan II-32). The Northern Region Guide and FSM 2400-R1 Supplement 2400-96-3 state that “where natural catastrophic events such as fire, windstorms, or insect and disease attacks have occurred, 40 acres may be exceeded without 60 day public review and Regional Forester approval, provided that the public is notified in advance and the environmental analysis supports the decision” (FSM 2471.1).

Under either action alternative, two units are proposed as regeneration treatments (Units 1 and 10). Both are adjacent to existing regeneration openings (see Previous Harvest Map, Project Files – Vegetation), but only Unit 10 would result in an opening larger than 40 acres. (Unit 1 is 4 acres in size and adjacent to a 19-acre clearcut, which would result in a 23-acre opening.)

Unit 10 (3 acres) is adjacent to a 42-acre clearcut, resulting in a 45-acre opening. In this case, the level of beetle mortality has forced regeneration of an opening that is adjacent to an existing opening that is already greater than 40 acres. The previous harvest in the unit occurred in 1986, and was certified as regenerated in 1990. It will be considered an opening hydrologically through 2001 and in terms of wildlife until 2066 (depending on wildlife species). **This EA serves as notice to the public of the need to exceed the 40 acre opening limitation.**

The National Forest Management Act (NFMA) provides that timber harvest and other silvicultural practices shall be used to prevent damaging population increases of forest pest organisms and treatments shall not make stands susceptible to pest-caused damage levels inconsistent with management objectives. The best way to achieve this is to increase the component of early seral species, as proposed under either action alternative, to provide greater diversity of native tree species across the forest landscape.

All stands proposed for regeneration harvests are on lands suitable for timber production and could be adequately restocked within five years of the final harvest.

# FIRE/FUELS

## Introduction

Because of effective wildfire suppression since the 1930s and the broad scale change in species composition of the forest, fuel levels have been building for the last several decades that are much higher than historic levels in the intermountain west. Overmature trees are succumbing to normal levels of forest pests at an accelerated rate and over-crowded understories are providing excessive ladder fuels (forest fuels, normally green foliage, arranged in a vertical pattern that enable a ground fire to climb into the tree crowns) in mature stands. On the Coeur d'Alene River Ranger District, recent winter storms damaged many stands and subsequent insect attacks (especially Douglas-fir bark beetle) have killed even more trees which are adding to these fuel levels. Due to the increased number of snags, a wildfire could be more unsafe for fire fighters and it could be so intense it could be difficult to control. The resulting potential wildfires could destroy most of the trees (a stand-replacing fire). Potential high-intensity wildfires could also have severe consequences to other vegetation, soils, stream networks, and the visual quality of landscapes.

## Regulatory Framework

The Forest Plan objective is to implement efficient fire protection and use programs based on management objectives, site specific conditions, and expected fire occurrence and behavior (Forest Plan, pages II-10, II-38). Management area standards and goals provide direction for appropriate response. Fire management plans are to be guided by the following standards:

- *Human life and property will be protected.*
- *The appropriate suppression response for designated old-growth stands in all management areas except in wilderness will result in prevention of old growth loss.*
- *Activity fuels will be treated to reduce their potential rate of spread and fire intensity so the planned initial attack organization can meet initial attack objectives.*

The Forest Plan Management Areas within the Little Ucelly Heli Bug Project Area includes goals to manage suitable lands for timber production for the long-term growth and production of commercially valuable wood products and to provide sufficient forage to support big game habitat needs. The fire protection standard to achieve these goals is to use initial attack strategies (confine, contain and control) appropriate to achieve the best benefit based on commercial timber values.

Forest Service Manual (FSM) 5150, defines fuel as combustible wildland vegetative materials, living or dead. Agency direction is to evaluate, plan and treat wildland fuel to control flammability and reduce resistance to control utilizing mechanical, chemical, biological, or manual means (FSM 5150). This includes the use of prescribed fire to support land and resource management objectives.

The objectives of fuels management under this project are to:

- *Reduce fire hazard to a level where cost effective resource protection is possible should a wildfire ignition occur. Fire hazard is the potential fire behavior (intensity and rate of spread) of a fire burning in a given fuel profile and its ability to be suppressed by firefighting forces.*
- *Reduce the potential fire severity.*

Fire suppression policy from the early 1900's until the late 1970's has been that of total suppression. Only recently has fire policy been modified to recognize the importance of fire in balancing vegetation cycles within the temperate forest. The "Federal Wildland Fire Management Policy and Program Review" was chartered by the Secretaries of the Interior and Agriculture to examine the need for modification of and addition to Federal fire policy. The review recommended a set of consistent policies for all Federal wildland fire management agencies. In adopting the policy, the Federal Agencies recognized that wildfire has historically been a major force in the evolution of our wildlands, and it must be allowed to continue to play its natural role wherever possible. It was also recognized that all Agencies will not necessarily employ all identified procedures on all administrative units at all times (USDI, USDA, 1995; USDI, USDA, 1996). The severe wildfire seasons in northern California and Oregon in 1987, in Yellowstone Park and the Northern Rocky Mountains in 1988, throughout much of the West in 1994, Florida and Texas in 1998 and 1999, California again in 1999, and the Northern Rockies in 2000, have made it clear that fire cannot be excluded from fire-dependent ecosystems. On the other hand, because of developed areas and commercial forests, it is not feasible to fully restore fire to its historic character, except perhaps in a few of the largest wilderness areas (USDA, 1996.)

## Affected Environment

Fire was and is the major disturbance factor that produces vegetation changes in our ecosystems. If the role of fire is altered, or removed, this will produce significant changes in the ecosystem. Fire has burned in every ecosystem and virtually every square meter of the coniferous forests and summer-dry mountainous forests of northern Idaho, western Montana, eastern Washington, and adjacent portions of Canada. Fire was responsible for the widespread occurrence and even the existence of western larch, lodgepole pine, and western white pine. Fire maintained ponderosa pine throughout its range at the lower elevations and killed ever-invading Douglas-fir and grand fir (Spurr and Barnes 1980). Many ecosystems are regularly recycled by fire; life for many forest species literally begins and ends with fire. The effects of the historic disturbance factors, mostly associated with fire, and their current absence are discussed in more detail in the Forest Vegetation section of this Chapter.

The Coeur d'Alene basin historically had a variable fire regime of long interval large lethal fires mixed with shorter return interval non lethal and mixed severity fires. Non lethal fires are typically low severity surface and understory fires that kill 10% or less of the dominant tree canopy. Mixed severity fires are typically patchy and irregular burns producing a mosaic of different burn severities where the fire kills more than 10% but less than 90% of the dominant tree canopy. Lethal fires are often called stand replacing fires and generally burn with high severity. They are commonly but not always crown fires and kill 90% or more of the dominant tree canopy.

In addition to cycling carbon and nutrients, the infrequent large lethal fires played a dominant role in resetting the successional sequence and structuring the vegetation matrix across the landscape. However, the nonlethal and mixed severity fires were also important. Most stands within the Coeur d'Alene Basin apparently experienced an average of one to three of these low severity burns between lethal fires. These lower severity fires would reduce ground fuels, reduce ladder fuels, thin stands, and favor larger individuals of fire resistant species (larch, Douglas-fir, and ponderosa pine), than if these mixed severity and nonlethal fires had not occurred.

Lower severity fires structured how the landscape responded when a lethal severity fire did occur. The lower severity fires increased the proportion of the landscape with big trees and open canopies that would not sustain a crown fire. Reduction of ladder fuels would mean that even high intensity fire might not reach tree canopies in some cases. The larger trees that grew as a result of this thinning by fire would be more likely to survive even intense fires. The net result would be that even most lethal severity fires would be likely to leave more individual residual trees and patches of residual trees than if the lower severity fires had not

occurred. The effects of lethal fire events would therefore be less uniform as a result of the lower severity fires.

The Little Ucelly project area is primarily comprised of moist forest types with about 25% in a transition type forest which possess most of the features of both dry and moist forest types. Historically, large lethal fires that occurred at intervals of approximately 140-250 years had the greatest influence on stand structure and the landscape in moist forest types.

There are several reasons for the departure from historic stand structure now evident in this area. Early timber harvests typically were "high grade" selection harvests removing only the large valuable tree species. This resulted in major stand conversions to dense, uniform, grand fir, hemlock, and Douglas-fir stands where the large fire-resistant trees such as ponderosa pine and larch were no longer present. The introduction of white pine blister rust disease from Europe resulted in devastating losses to white pine which was a prime component of warm/moist forest types. This too contributed to the major stand conversion mentioned above. Since the late 1930's fire control efforts became much more effective. The primary impact of fire control has been to eliminate underburns and mixed severity fires which served to thin out stands and reduce fuel loads.

Although increases in volume and stocking are not as evident in moist forests as in dry and transition forests, some excessive fuel buildups have developed. Fuel accumulations associated with blister rust mortality can be substantial, and increasing accumulations of dead Douglas-fir and true firs associated with root disease mortality is expected. Additionally, conversion of tall, well spaced white pine to low, densely stratified fir results in hazardous fuel ladders. Thus, significant changes in fire behavior are also a characteristic of modern-day, moist interior forests. Such changes in fire behavior threaten future fire control and place neighboring forest ecosystems at risk (Harvey, 1984).

Transition forests (warm, dry to warm, moist) possess most of the features of both dry and moist forests. Landscapes were historically a complex patchwork of stands resulting from fires that produced both lethal and nonlethal effects. Due primarily to the influences of fire exclusion and selective logging, as discussed above, modern day transition forests are far more homogeneous than historical forests. Loss of landscape diversity is primarily associated with increasing dominance and layering of shade-tolerant species in stands previously dominated by open-growing ponderosa pine or other seral species. On areas that transition to moist forest types, the historic forest species composition was mixed, with pines and larch playing a more dominant role than that of today. Mixed severity fires are now an improbable occurrence in many transition forests (Harvey, et.al. 1995, USDA 1999).

A significant change from common historic patterns is indicative of unhealthy conditions. Application of this concept to most north temperate and boreal forests characteristic of the western interior of the United States suggests many are unhealthy, especially where historical fire regimes have been significantly interrupted (Harvey,1984, U.S. GAO, 1999a and 1999b).

For more information on fire severity, return intervals, fire history, and fire effects on forest types in the Coeur d'Alene basin see the Fire/Fuels section of the Douglas-fir Beetle EIS (IPNF, 1999), pages III-219 to III-235.

## Environmental Consequences

### Methodology

Of primary concern to fuels management is the long-term fuel loading increase and subsequent changes in fire intensity and severity that may occur as a result of forest pest activity. The Douglas-fir Beetle EIS (IPNF, 1999) did an in depth assessment of the effects of bark beetle mortality on fire behavior. That project used the

Forest Vegetation Simulator with the Fire and Fuels Extension (FFE-FVS) to predict the effects of various vegetation management actions on future forest fire behavior and severity. That assessment used the BEHAVE model to predict rates of spread and intensities. In addition, site specific studies were made 10 years after at previous beetle outbreak locations. See the Fire/Fuels section of the Douglas-fir Beetle EIS (IPNF, 1999) pages III-219 to 235 for more information on methodology for determination of environmental consequences. The Little Ucelly Heli Bug EA has similar consequences as discussed in that assessment.

## Direct and Indirect Effects

### *Direct and Indirect Effects Common to Both Action Alternatives*

Timber harvest would significantly affect both short and long-term fuel loading in beetle-affected areas. Timber harvest converts unavailable aerial fuels into available surface fuels. Thus the risk of crown fire may be reduced while the risk of surface fire can be increased by adding fuel to the ground. In the short term there would be an increase in surface fuel loadings in order to decrease long term fuel loadings. An increased fire hazard and risk of ignition from timber harvest may result. Treatment of created fuels can reduce these risks. The potential for a fire outside of proposed harvest areas, the overall fuel mosaic on the landscape, and future vegetation and fuel succession must be considered when planning fuels treatments. The treatment of fuels in the harvested stands would certainly reduce potential fire severity and help reduce potential damage to soil productivity. Reducing fire severity would also increase the probability of more vegetation surviving a wildfire.

Any type of human activity increases the possibility of ignition and wildfire. Common ignition sources include; equipment operation, smoking and arson. The timber purchaser will be required to have fire equipment and to take necessary fire precautions to prevent a wildfire from occurring. In the event of extreme fire conditions, the harvest activities would be regulated or suspended until conditions improve. The timber sale administrator closely monitors the fire prevention requirements of the timber contract throughout the timber harvest operations.

The preferred fuels treatment for all units that contain fire resistant species is underburning or jackpot burning. In units were fire resistant species and larger tree sizes are not present, the opportunity to introduce fire may be limited. Hand piling and burning is also a very effective fuels treatment, however costs per acre are extremely high. Where the size of the harvested area is very small, where relatively few trees are removed, or where logical burn boundaries to control the burn do not exist, fuels treatment may be limited to lop and scatter or top attached yarding.

The Douglas-fir Beetle FEIS (IPNF, 1999) modeled three different fuel treatment scenarios. These scenarios included salvage logging with two different slash treatment prescriptions, yarding of tops and lopping tops. The third scenario was a regeneration harvest system, shelterwood with reserves, followed with underburning. A jackpot burning fuel treatment would be similar to an underburning treatment, but only concentrations of fuel would be burned, instead of attempting to reduce all fuel over the entire harvested area. Salvage logging, with no prescribed fire treatments would increase potential flame lengths over the short term. This is because when these trees are harvested, all fuel would be on the ground instead of accumulating more slowly, as under the No-Action Alternative.

A lop and scatter treatment, while not reducing the residual fuel load, is designed to get fuel reduced to ground level, thus increase the rate of decomposition and decreasing the length of time that these fuels could contribute to potential increased severity should a wildland fire occur. Yarding tops would reduce fuel loadings and potential flame lengths somewhat, but would not eliminate the increases as with burning options. It was estimated that yarding tops would only remove 50 percent of the tops of harvested trees as dead

Douglas-fir would be more brittle than green trees so breakage of tops and limbs would be significant. Removal of all logging slash would not totally eliminate the potential for increased flame length should a fire occur because the extent of mortality would provide more open stand characteristics allowing increased wind and solar penetration.

Regeneration harvesting, followed with underburning appears to be the best treatment to reduce fuel loads and reestablish seral species. Underburning would significantly reduce the fire intensity over the short and long term and the rate of spread over the short term. Maintaining seral species is an important step in sustaining forested environments that can adapt and sustain disturbances within the range of natural variability. (Effects of the action alternatives on changes to structural stage and species composition are discussed in the Vegetation section of this EA.) Other treatments would be relatively the same over the long term; however, in the short term, the removal treatments would be better than the lop and scatter method. Removal would decrease fire severity and, to a lesser extent, fire intensity. This would give initial attack forces a better opportunity to control fires in the initial attack phase of fire suppression activities. The deciding factor in choosing which treatment to apply may be dependent upon the number of trees salvaged, location of the unit, and risks to other values compared to the cost of the treatments, and potassium levels in soils. See the Fire/Fuels section of the Douglas-fir Beetle EIS (IPNF, 1999) pages III-215 to 235 for more information on the effects of these treatments. The reduction in snag component associated with the salvage of beetle-killed trees, under alternatives 2 and 3, would improve firefighter safety. This may give hand crews the ability to directly attack a fire start in this area so that contain and control objectives can be achieved before a fire increases in size.

### *Alternative 1 (No Action)*

Alternative 1 is the No-Action Alternative, under which there would be no change from current management direction or from the level of management intensity. Timber harvest, fuels reduction, and vegetative restoration would not be initiated at this time. The effects analysis reflects existing conditions and the anticipated effects if no actions are taken.

Once forest canopies are opened, structural changes begin to take place in the surface vegetation. As more sunlight reaches the ground, more grass and brush species can grow and conifer regeneration begins. Fuel models used for estimating fire behavior would also change. In adjacent portions of the stands that were unaffected by the Douglas-fir beetle and root disease, the stands represented closed canopy timber stands (fuel models 8 and 10). Fire in the portions of these stands affected by the Douglas-fir beetle would now react as a shaded grass fuel model (model 2) or a brush model (model 5 or 6). This condition would last for several years. Rates of spread would increase compared to a model 8 or 10 (please refer to the table below). Since the stands would be more open, atmospheric conditions would have more effect on the fuel, fuels would dry quicker and more wind could penetrate the forest canopy to fan flames.

Trees that are killed will stand for several years and therefore will not immediately become available ground fuel that would influence fire activity. By 15 years all branches and large limbs will have fallen and approximately 50 percent of the snags will have fallen also; greater than 90 percent of the snags will fall within 35 years (USDA, 1998b). The fuel accumulation rate will far exceed the decay rate for several decades. In affected stands, within 10 to 15 years, fuel conditions will start to resemble a fuel model 10 (a timber stand with heavy down material and fuel ladders that enable a surface fire to climb into the crowns) or a fuel model 11 or 12 (a stand with heavy debris, often referred to as a slash model). Since the stands would still be fairly open and contain more grass and brush or regeneration than a dense timber stand, spread rates may resemble a grass or brush model while intensities may start to resemble that of a fuel model 10, 11, or 12. These conditions are similar to those found by Leiberg (1897) that historically contributed to severe stand-replacing fires in the Coeur d'Alene basin.

Values in the table were predicted using the BEHAVE model and constant weather and fuel moisture conditions to show changes in fire behavior as fuel models change. Two sets of values were used for calculations. The first set represents burning conditions commonly found during normal summers in the inland Northwest and the second set represents burning conditions commonly found during drought conditions (NWCG, 1992). The differences between a fuel model 8 and a grass model 2 or brush model 5 or 6 is even more pronounced during drought conditions.

### Table III-3. Estimated rate of fire spread and flame length, during normal and drought conditions.

| Fuel Model | Rate of spread[1] (chains per hour) normal/drought | Flame length[2] (feet) normal/drought |
|---|---|---|
| 2 | 25/32 | 5.3/6.3 |
| 5 | 11/27 | 3.4/6.7 |
| 6 | 28/34 | 5.6/6.4 |
| 8 | 2/2 | 1.0/1.2 |
| 10 | 7/10 | 4.5/5.7 |
| 11 | 6/7 | 3.4/3.7 |
| 12 | 13/15 | 7.9/9.0 |

***1 Rate of spread****. Forward rate of spread of the fire, expressed in chains per hour. One chain equal 66 feet.*

***2 Flame Length****. The distance measured from the tip of the flame to the middle of the flaming zone at base of the fire, is valuable in determining type of resources necessary to fight fire by direct attack methods. Hand crews can normally suppress fires with flame lengths up to 4 feet, equipment is necessary when flame lengths are between 4 and 8 feet , aerial support is needed for fires with flame lengths up to 11 feet. Direct attack is not effective on fires with flame lengths over 11 feet.*

Similar changes in ecosystem structure in the past have undoubtedly contributed to fires, from lethal stand-replacing to low severity underburns, that recycled inland ecosystems. However, prolonged buildup of fuel may eventually lead to fires more catastrophic and destructive to the site than typically occurred in the native forest. Fuel loadings and flame lengths of a wildfire would be expected to increase over time as a forested stand matures and surface fuels accumulate faster than the decay rate. Because of bark beetle induced changes in stand structure, these changes would occur at an accelerated rate. The immediate effect would be for increased wind penetration into forested stands, which in the event of a fire start, would increase flame lengths and rates of spread. In successive years, the effects of surface fuel loading changes as portions of limbs and tops from the beetle killed trees fall to the ground. As the dead fuel accumulation from the beetle killed trees slows, increases in regeneration provide fine fuels necessary to maintain flame lengths and spread rates. After fire occurrence, the fuel loading and potential flame lengths would be reduced while fuel accumulated from trees killed by the fire. After several years of fuel accumulation, the potential would rapidly increase, which would explain the repeat burns historically common to inland forests (Leiberg, 1897; Zack and Morgan 1994). Following these reburns the potential intensities would be lower for many years as forests became reestablished.

The increase in snag component associated with beetle mortality can also make it difficult to suppress fire when they are small. High snag densities may not allow for safe firefighter conditions. This may result in hand crews having to rely on indirect attack methods. This may allow fires to increase in size and intensity and make them more difficult to control.

*Alternative 2*

Under Alternative 2, underburning would occur on 7 of the 52 acres proposed for treatment. Thirty-six acres would be proposed for lop and scatter treatments where existing mortality is generally light or where removing tops via helicopter yarding would be expensive. Lop and scatter would put the smaller diameter fuels on the ground for more rapid deterioration but would not reduce the increase in short term fuel loads as a result of the salvage activity. The remaining 9 acres would require yarding tops where cable yarding is specified and soil conditions are not limited by potassium levels. This alternative also provides for the opportunity to reestablish seral species on some of the treatment acres which would improve the sustainability of the forest ecosystem.

*Alternative 3*

Under Alternative 3, underburning would again occur on 7 of the 52 acres proposed for treatment. Twelve acres would be proposed for lop and scatter treatments. Yarding tops treatment would occur on 33 of the acres proposed for treatment. This increase in yarding tops treatment under this alternative is the result of increased road access to these units. Roading allows for inexpensive top removal methods using cable yarding versus removing tops with helicopter yarding. Potassium levels in soils is still the over-riding factor in chosing lop and scatter versus yarding tops. The cutting of green trees for skyline corridors was also a factor in selecting yarding tops over lop and scatter in some units. It will be desirable to remove the tops of green trees to not increase potential fuel loadings above that created by the bark beetles in these areas. The temporary road proposed to access the top of unit 1 under this alternative, would also create a more defensible top burn boundary for underburning of unit 1. Overall, alternative 3 would provide better fuels reduction than alternative 2 because of the increase in yarding of tops.

## Cumulative Effects

*Cumulative Effects Common to All Alternatives*

The effects of the Douglas-fir beetle on infested forested areas will be an acceleration of successional changes that the areas are currently going through. The projected infestation on the project area is confined to approximately 200 acres within 1756 total acres. As a percentage, this is rather small and would not likely, in itself, lead to catastrophic large stand-replacing wildfires in the project area. Most large stand-replacing fires on the Idaho Panhandle National Forests are wind driven or the result of regional climatic patterns, higher fuel loadings from beetle killed trees would have minimal affect on such an event once it occurs. The scattered nature of regeneration units with underburning also would have minimal affect on such an event. The treatment acres are too small to stop a large running crown fire. The larger regeneration units from past treatments would have a greater effect on reducing the spread of a large catastrophic fire, but the treatment areas are still fragmented so that fires may spot across or go around them. The regenerated acres under this proposal, though moving the drainage in the proper direction, do not significantly contribute to restoration of historic species composition because of their size. Larger regeneration units from past treatments are providing a favorable trend toward more historic species composition, though still fragmented in occurrence.

*Cumulative Effects Common to Both Action Alternatives*

It is true that catastophic fires are generally wind driven or the result of climatic patterns such as drought, however catastrophic fires must have an ignition source. Treatment of these areas would reduce fire intensity over the long term by reducing fuel loads. This may allow firefighters to contain and control a small fire before it becomes a large one. Reducing fire intensity in even small areas may improve the chances of firefighters to contain and control a small fire start in conditions that would otherwise lead to a catastrophic

fire occurrence. Reducing the snag component may also allow for a direct attack by firefighters that could serve to keep a fire start small during conditions that might otherwise lead to a catastrophic fire occurrence.

### *Cumulative Effects on Private Lands*

There is private ownership, between the two sections of the project area, along the mouth and the West Fork of Eagle Creek. This ownership is generally along the broad stream valleys with scattered home sites. With the planned subdivision of private ownership up the West Fork, homesites are expected to increase in this area. This may increase the risk of a man-caused fire start in this basin.

A larger fire in the west half of the project area, with the prevailing westerly winds, would put the private land at risk. Homesites would likely be defensible except under the worst conditions. The project areas are several miles to the north and west of the small town of Murray. Larger areas of private ownership occur in this area. A large fire in the project area that would spot across Eagle Creek, could put the Murray area at risk. This would be possible with a dry cold front passage, not uncommon during the summer months, where the winds eventually shift to out of the northwest. A small fire, without the effects of wind, would generally burn up to the ridgetops and away from private ownerships.

Land management agencies in Northern Idaho are not advocating a return to historic disturbance regimes at the landscape level. Natural disturbance regimes included severe and rapidly moving forest fires that sometimes exceeded 100,000 acres. While the full range of historic fire regimes was a functional part of the historical natural ecosystem, we are now operating in an environment of a changed human context. Returning to the full range of historic disturbance patterns would generate significant threats to human life and property. Fire starts within the project area would be fought aggressively because of the presence of private ownership and homesites in the Eagle/Prichard area.

### *Cumulative Effects of Ongoing and Reasonably Foreseeable Actions*

Reasonably foreseeable future actions are listed in Chapter II. Activities associated with site preparation and reforestation of past and planned timber sales will reduce fuel loadings and move the drainage toward more historic timber species composition, however these actions will only result in changes at a small scale. Disturbances similar to historic proportions would be necessary to facilitate the vegetation restoration that is needed to significantly change trends in potential fire intensities and severities. Obliteration of roadways may result in a small decrease in man-caused fires but of increasing concern is the decrease in efficiency of fire suppression access.

Fuelwood gathering will reduce some of the large dead wood component in the drainage but it is very limited in scope, within short distances of open roads, and would have no effect at the drainage level. Fuelwood gathering activities will increase the risk of a human-caused fire start in the drainage.

The expected increase in development on private ownership in this area increases the concern of protection of lives and property with any fire start in this area. This can shift available suppression forces away from resource protection and more toward protection of structures and civilians.

### *Cumulative Effects of Opportunities*

Decreasing the road density may result in a small decrease in human caused wildland fires, although the change may not be noticeable because there would not be a significant change in road densities or use patterns on the travel zones that have the highest ignition density. On the opposite side, any road obliteration may

tend to decrease efficiency of fire suppression access, potentially allowing fires to grow in size and intensity prior to the arrival of initial attack resources.

The ecosystem burning opportunity will reduce fuel loads and fire intensity in the short and long term at this site location. However, it is not large enough to change the trend of increase fire intensity and severity as the result of fire exclusion in the basin.

Noxious weed treatment and monitoring would have no effect on wildland fire intensities in forest fuel types. If spotted knapweed were to invade and dominate surface vegetation in dry open forest types and meadow types, a reduction of fire intensity could be expected. Spotted knapweed out-competes native grasses and does not burn well. In areas where knapweed infestations are reduced in these types, fire intensities could be expected to increase in the event of wildland fire.

*Cumulative Effects At The Forest Level Scale*

The effects of 100 years of past human activity on inland forested ecosystems has resulted in a significant change from historic patterns and is indicative of unhealthy ecosystem conditions. Prior to 1960 many upland areas were high-grade logged removing only the valuable species, resulting in major stand conversions to grand fir, hemlock, and Douglas-fir. Since the late 1930s, fire control efforts have become effective. The primary impact of fire control has been to eliminate underburns and mixed severity fires which served as the thinning agents that favored larch and ponderosa pine. In 1909 white pine blister rust was accidentally introduced to western North America. This Eurasian disease devastated white pine forests in north Idaho (Zack 1995).

Because of this change in species composition and structure, low and mixed severity fires are now an improbable occurrence in many forests; severe stand replacing fires are more likely. The no action alternative takes no steps to interrupt this trend. Under the action alternatives large fuel removal and various fuel treatments would occur to reduce long term fuel accumulations, reintroduce seral species (ponderosa pine, white pine and larch) where present levels of stand mortality make this desirable, and makes progress towards reducing potential intensities and severities of wildfire in some stands. Even with this treatment, untreated areas and areas treated with salvage harvest only will continue to trend toward conditions that favor potential high intensity wildland fires. Only the action alternatives will reduce high snag densities and address the problem of firefighter safety.

## Consistency With the Forest Plan and Other Applicable Regulatory Direction

The goal of the Forest Plan is to provide efficient fire protection and fire use to help accomplish land management objectives (IPNF Forest Plan, Chapter II, pages II-10 and II-38). Under Alternative 1, no fuels treatment would occur beyond that already ongoing or planned under other projects. The continued succession of fuels and vegetation, mortality from insect disease, and the exclusion of fire will create areas where the trend in fire behavior characteristics will in time exceed the goals, objectives and standards established in the Forest Plan. Action alternatives propose various forms of fuels treatment and make progress towards reducing the potential intensities of wildfire over the long term. Since the proposed treatments are small in scope, even with this treatment, untreated areas and areas treated with salvage harvest alone will continue to trend toward characteristics that exceed the goals, objectives and standards established in the Forest Plan.

# FINANCES

## Regulatory Framework

The IPNF's Forest Plan EIS (page IV-47) indicated, "The level of timber harvest is important not only in providing jobs in the timber industry, but also through indirect and induced impacts on other business sectors as well." One of the seven major issues for the IPNF's Forest Plan EIS was community stability (Forest Plan FEIS, pp.1-8). Forest Service policy sets a minimum level of financial analysis for timber sale planning (see Forest Service Handbook 2409.18 section 32).

## Methodology

Each alternative was run through the current Transactional Evidence (TE) appraisal system to determine expected bid rates. The TE appraisal system is used to determine the selling values when timber sale contracts are developed. Costs, such as road maintenance, fuel reduction/site preparation (burning), and planting, were based on experienced District costs, as is the case during contract developement.

Based on past bidding results from previously offered beetle-killed timber, small helicopter or mix system offerings do sell but they are not bid up. This is due to the fact that there is limited competition of these sales. Small operators do not have access to helicopters and larger mills do not bid on small quantities of timber. On the other hand, past bidding results show a considerable bid up in small beetle-killed timber offerings that do not involve any helicopter yarding (Project Files – Finances). This is the result of competition between the numerous small operators in the area. These factors are included in the economic analysis of each alternative.

Non-commodity values were not included in this analysis because these resources are evaluated under the specific resource section. Title 40, Code of Federal Regulations for NEPA (40 CFR 1502.23) indicates that "For the purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are qualitative considerations." Effects on resources are documented in individual resource sections.

The description of the features of the alternatives presented in Chapter II was used for the financial analysis (Table II-14).

## Affected Environment

Within northern Idaho, the Forest Service has been contributing about 11 to 12 percent of the timber that was on the local market the last few years. This figure is down from approximately 33 percent of the timber harvested during the late 1980s - early 1990s.

Based on the most recent information at the Forest level (TSPIRS, 1998), each million board feet of timber harvested on the Idaho Panhandle National Forests (IPNF) annually results in a total of 39.2 jobs and $1,158,000 income for that year. These figures include the impacts associated with harvesting and processing timber plus the impacts of Forest Service salaries and investment and the 25% fund expenditures.

Over past years timber markets have been down as a result of the Asian economic problems and raising of interest rates by the US Federal Reserve Board. However, in recent months the Reserve Board has reversed it’s position and has lowered interest rates. This is expected to stimulate housing starts and will likely result

in an increase in delivered log prices at local mills. However, recent changes in trading agreements with Canada has resulted in an increase in imports from our neighbor to the north. This lastest change has currently depressed the local markets and is factored in to the economic runs for this proposal. If the US Federal Reserve Board continues to lower rates, a gradual increase in delivered log prices is expected to occur compared to current market conditions.

District sales of Douglas-fir timber by the Forest Service during 1999 and 2000 have brought bids averaging $126 per thousand board feet for the Douglas-fir beetle killed timber (Project File – Finances). This figure is for sales that contained a high amount of helicopter yarding and generally high brush disposal costs. Bid prices have a wide range from $32 to $412 per thousand board feet depending on the yarding systems involved.

## Financial Consequences

The following table presents costs for this project, based on the time line identified in Chapter II. These cost include inflation and overhead where appropriate. Cost of some activities not planned under this project were included in this table for comparison purposes.

### Table III-4. Cost Estimated for Project Activities.

| Project Activity | Cost | Per Unit |
|---|---|---|
| **Roads: Timber Sale*** | | |
| Maintenance (During Sale) | $0.54 | /mile/mbf |
| **Fuel Treatment: Purchaser** | | |
| Helicopter Yarding Tops: | $40.00 | /MBF |
| Skyline Yarding Tops | $10.50 | /Acre |
| Slash Unmerchantable and Brush/Prep. for Underburning | $100.00 | /Acre |
| Grapple Pile slash with a machine (excavator) | $250.00 | /Acre |
| Pile slash at landings: | $667.00 | /Acre |
| Burn slash at landings: | $100.00 | /Acre |
| Fire Line constructed by hand | $101.00 | /Chain |
| Fire Line constructed by machine | $55.00 | /Chain |
| Lop and scatter | $50.00 | /Acre |
| Leave Tree Protection | $55.00 | /Acre |
| **Fuel Treatment: Forest Service**** | | |
| Burn slash at landings: | $135.67 | /Acre |
| Underburn in units for slash reduction and site preparation | $525.00 | /Acre |
| Jackpot burn in units for slash reduction | $244.21 | /Acre |
| Hand Pile | $1,628.04 | /Acre |
| Burn Hand piles | $135.67 | /Acre |
| **Erosion Control** | | |
| Seed Skidtrails & Landings (Purchaser) | $59.00 | /Acre |
| Seed & Waterbar Roads | $200.00 | /mile |
| **Road Construction** | | |
| Specified road reconstruction | $2,500.00 | /mile |
| Temporary road construction | $5,000.00 | /mile |
| **Noxious Weeds Control (Purchaser)** | $281.00 | /Acre |
| **Essential Regeneration**** | | |
| Plant (8x8 ft spacing) | $611.85 | /Acre |
| Stocking Surveys (3 each per acre planted) | $57.14 | /Acre |

** Road Maintenance terms are defined on the Terminology insert.*
*** Includes overhead.*

## Direct and Indirect Effects

Not managing the timber resource in these areas (as under Alternative 1) would result in a loss of mature timber value. The majority of this timber component is dead as a result of insect infestation. A portion of the timber value and volume has already been lost. If this dead timber is not recovered, then the demands and expectations of timber supply from the National Forest will need to be made up from other areas. Both action alternatives look at reforestation of areas hit hard by the beetle infestation and address productivity over the long term. Reforestation would hasten the return of these areas to high value timber stands. This directly relates to expected ***future*** revenues.

Under the action alternatives, timber harvest would contribute (to a small extent) to continuing operation of local mills, thus, directly and indirectly enhancing the local and state economy through employment and tax revenues. These economics may also be enhanced by employment created through reforestation needs identified. Historically, 25 percent of the gross timber receipts generated by the Coeur d'Alene River Ranger District would go directly to Kootenai and Shoshone Counties, Idaho, for public schools and roads. Under Public Law 106-393 (Secure Rural Schools and Community Self-Determination Act of 2000), eligible counties have the option continuing to receive their share of the State's payments under the 25 Percent Fund Act (15 USC 500), or electing to receive their share of the average of the three highest 25 percent payments to the State during the period of fiscal year 1986 through 1999 (essentially the full payment amount). The Act directs the Secretary of the Treasury to pay each State the sum of the amounts elected by the eligible counties in the State. The States then distribute the funds among the eligible counties. It is likely that timber sale receipts will continue to be used to satisfy payments to the counties.

It is anticipated that the sale of timber from National Forest System lands would have very little effect on the price that private land owners receive for their timber, because the timber in this proposal would be part of the IPNF's normal timber program and constitutes only 11 to 12 percent of the local market.

Timber harvest from the action alternatives, though small in quantity, would contribute to continuing operation of local mills, thus, directly and indirectly enhancing the local and state economy through employment and tax revenues. These economics may also be enhanced through employment created through reforestation needs identified. Additionally, 25 percent of gross timber receipts will likely still be directed to Kootenai and Shoshone Counties, Idaho, for public schools and roads.

It is anticipated that the sale of timber from National Forest System lands would have very little effect on the price that private land owners will receive for their timber because the timber in this proposal would be part of the IPNF's normal timber program and constitutes only 11-12 percent of the local market.

## Table III-5. Cost/revenue table.

| Timber Sale Revenue | Alt. 1 | Alt. 2 | Alt. 3 |
|---|---|---|---|
| (1) Stumpage Value (gross) | NA | $56,928* | $109,102* |
| Total MBF | none | 300 | 350 |
| (2) Total CCF | none | 600 | 700 |
| **Timber Sale Costs Affecting Predicted Bid** | **Alt. 1** | **Alt. 2** | **Alt. 3** |
| (3) Road maintenance (during sale) | $0 | $1800 | $2240 |
| (4) Road reconditioning | $0 | $0 | $0 |
| (5) New road construction | | | |
| a) Permanent road construction | $0 | $0 | $0 |
| b) Temporary road construction | $0 | $0 | $1000 |
| (6) Road reconstruction | | | |
| a) Brushing, ditch and shoulder earth work: | $0 | $0 | $3000 |
| b) Upgrading existing culverts: | $0 | $0 | $0 |
| c) Install/remove culverts in closed roads | $0 | $0 | $0 |
| d) Install gates on roads presently closed | $0 | $1000 | $1500 |
| (7) Road obliteration and wildlife-related road closures -Sale Contract** | $0 | $0 | $0 |
| (8) Seed skid trails and landings | $0 | $300 | $280 |
| (9) Slash disposal/site prep (Purchaser) | $0 | $7,432 | $5,578 |
| a) Safety snagging on helicopter units | $0 | $180 | $0 |
| (10) Slash disposal/site prep (FS) | $0 | $3,675 | $4,082 |
| (11) Noxious weed control (Purchaser) | $0 | $300 | $300 |
| (12) Total sale contract costs (sum of lines 3 through 11) | NA | $14,687 | $17,980 |
| (13) Predicted (high) bid value (subtract line 12 from line 1) | NA | $42,241 | $91,122 |
| a) Roll back factor (increases likelihood of sell to 95%) *** | NA | -$11,196 | NA |
| b) Market adjustment (40% reduction) | NA | -$12,414 | -$31,206 |
| (14) Predicted (net) bid value (subtract lines 13a and 13b from 13) | NA | $18,631 | $59,916 |
| (14a) Predicted bid/CCF (line 14 divided by line 2) | NA | $31 | $86 |
| **Other Project Costs** | **Alt. 1** | **Alt. 2** | **Alt. 3** |
| (15) Reforestation | $0 | $4,683 | $4,683 |
| (16) Road obliteration and instream work (FS) for watershed restoration | $0 | $0 | $0 |
| (17) Road closures for wildlife security (FS) | $0 | $0 | $0 |
| (18) Total Other Project Costs (add 15 thru 17) | $0 | $4,683 | $4,683 |
| (19) Minimum bid (per mbf) that would fund all other projects (divide line 18 by line 2) | NA | $8 | $7 |
| (20) Difference between predicted and minimum bid (per CCF) (Subtract line 19 from line 14a) | NA | $23 | $79 |
| **Other Forest Service Costs** | **Alt. 1** | **Alt. 2** | **Alt. 3** |
| (21) Planning | $20,000 | $20,000 | $20,000 |
| (22) Sale preparation | $0 | $4,200 | $7,000 |
| (23) Harvest and engineering administration | $0 | $1,056 | $1,750 |
| (24) Net value (subtract lines 18, 21, 22, and 23 from line 14) | -$20,000 | -$11,308 | $26,483 |
| (25) 25% Fund (County) (multiply line 14 by 25%) | $0 | $4,658 | $14,979 |

** the gross stumpage value is derived from Transaction Evidence (TE) appraisal runs. See Project Files (Finances) for this and other cost basis data.*

*** obliteration of temp road and front-end obliteration on reconstructed road included in road costs.*

**** rollback factor is not included in alternative 3 because it is a conventional sale with no helicopter yarding. Based on past bidding experience, small beetle-killed sales are consistently bid up (often above the predicted high bid) because of competition. Small helicopter sales are more often picked up at the predicted net bid value.*

As show in the table above, both action alternatives would finance all of the proposed treatment. Both action alternatives would finance the reforestation needs, although per Forest Service policy, neither would be required to do so since the timber being harvested is dead (Forest Service Handbook 2409.22, R1 Amendment 2409.22-97-2). Alternative 3 would generate the greatest return, over 3 times as much as Alternative 2. This difference is the result of more expensive helicopter yarding cost associated with Alternative 2. Based on past bidding, this difference may actually be greater than shown in the table.

Alternative 2 would generate a negative net value, primarily due to the planning costs needed to carry small projects such as this through an environmental assessment. In the past, a project such as this would have met the criteria to be categorically excluded from documentation in an EA or EIS, and would therefore have required less time and expense in conducting the analysis and preparing documentation.

Both alternatives meet the same stand treatment objectives. Alternative 3 would result in opening of 1.2 miles of brushed in existing roadway, 0.2 miles of temporary road construction, and loss of green corridor trees that would not occur under Alternative 2. Though small in scope, both action alternatives would trend the project area toward pine and larch species composition consistent with the direction in the Forest Plan and the Upper Columbia River Basin Assessment.

## Cumulative Financial Effects

The timber sale considered under this proposal would be part of the volume normally offered for sale by the IPNF; thus there is not an additional volume of timber that could adversly affect the regional timber market, and thereby private landowners with timber to sell.

**Effects of the Opportunities**: Either action alternative would likely be able to fund the opportunities described in Chapter II.

**Timber Management Financial Viability:** Implementing stand-management treatments can depend on having financially viable timber sales that the local forest products industry is willing to purchase. For such an analysis, all identifiable costs associated with timber sales (including administration, planning, sale preparation, and sale execution) were included. The table reflects the full cost of planting; however, per Forest Service policy, sales generated by these alternatives would not be required to carry the planting cost.

## Table III-6. Cost/Revenue Summary.

| Little Ucelly Heli Bug | Alt. 1 | Alt. 2 | Alt. 3 |
|---|---|---|---|
| Stumpage Value (gross) | $0 | $56,928 | $109,102 |
| Stumpage minus contractual costs | $0 | $42,241 | $91,122 |
| Minus market adj. & competition factor | $0 | $18,631 | $59,916 |
| Remainder minus planting costs | $0 | $13,678 | $55,233 |
| Remainder minus sale prep costs | -$20,000 | -$6,625 | $31,166 |

**Below-cost Sales:** Brush disposal and site preparation are included in contractual costs. If negative after planting costs, it represents a deficit sale. If negative after sale prep costs, it represents a below cost sale. Alternative 2 would result in a below-cost sale; Alternative 3 would not. The difference between the two alternatives is the expensive yarding system associated with helicopter yarding under Alternative 2. Another factor may be the cost associated with the requirement to do an environmental assessment for this small project, as discussed earlier. The planting costs could be subtracted, since the harvesting of dead timber would not be required to carry the reforestation cost. This would bring Alternative 2 close to the break-even point. However, reforestation is usually financed with timber receipts (even if not required) if the sale will generate enough funding.

Depending on timing of this and other timber sale projects, the opportunity may exist to combine this project with other timber sales that have proposed more vegetative restoration. This would allow the positive value of either alternative to help finance the restoration needs in another area.

## Consistency With the Forest Plan and Applicable Regulatory Direction

Forest-wide goals, objectives, and standards for finances are not specifically addressed in the Forest Plan. This issue is addressed indirectly in the discussion of community stability. Chapter II of the Forest Plan states, "Management activities will continue to contribute to local employment, income, and lifestyles. The Forest will be managed to contribute to the increasing demand for recreation and resource protection while at the same time continuing to provide traditional employment opportunities in the woods product industry," (Page II-11, Objectives).

The No-Action Alternative would not meet this objective, since it does not propose any commercial timber harvest, and would not contribute to local employment or income. Both action alternatives would meet this Forest Plan direction.

# WATER RESOURCES

## Regulatory Framework

The regulatory framework for the watershed and water resources aspect of the analysis is based on the Clean Water Act and its amendments; Idaho State's implementations of the Clean Water Act; the Forest Plan, and the Inland Native Fish Strategy (INFS).

Activities will be in compliance with the guidelines in the Soil and Water Conservation Handbook (Forest Service Manual 2509.22), which outlines Best Management Practices that meet the intent of the water quality protection elements of the Idaho Forest Practices Act.

## Existing Conditions

### Methodology

The assessment of existing condition describes the current condition of the project area and provides a basis for comparing the effects of management alternatives. This existing condition discussion was developed from many information sources including field surveys, aerial photographs, Geographic Information Systems (GIS), hydrologic response techniques and models such as WATSED, and other watershed and aquatic data derived by the Forest Service and other sources. The assessments followed the principles and processes in the Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis, Version 2.2, August 1995. (Regional Interagency Executive Committee and the Intergovernmental Advisory Committee, Forest Service and other federal agencies, copies available from Regional Ecosystem Office, PO Box 3623, Portland, Oregon 97208.)

The project area was analyzed from at least two scales: the local site or tributaries where activities take place; and the cumulative effect watershed. The cumulative effect watershed (or watershed area) is the logical culmination point of water flow where the effects of the distributed project activities could possibly integrate or synchronize over time and space and be addressed cumulatively in a larger watershed. The cumulative effects analysis includes an analysis of past, present, and reasonably foreseeable activities.

In each case, the direct, indirect, and cumulative impacts related to the alternatives of this project on streams were usually local in nature, and sometimes to the next larger tributary formed by multiple tributaries. In no case will the cumulative effects extend beyond the watershed or watershed area.

For a detailed discussion of historic hydrologic conditions, please refer to the Geographic Assessment for the Coeur d'Alene River Basin (USDA Forest Service, 1998).

A summary of information specific to watersheds of the project area is provided in Table III-7, including physical characteristics, qualifications, hydrologic regime, erosiona nd sediment, channel conflicts, and stream crossings. An explanation of each descriptor is provided with the table.

## Conditions in the Eagle Creek Watershed

**Overview:** The Eagle Creek watershed is approximately 28,533 acres and is comprised of numerous first, second, and third order streams that drain into Prichard Creek. Hillslopes are generally steep (40 to 70 percent) and vegetated predominately with conifers. Activities such as timber harvest, road building, and mining has occurred in most of the tributaries to varying degrees.

Considerable mining activity occurred in this area during the late 1800's, especially in the East Fork of Eagle Creek and its tributaries. Widespread placer mining and hard rock mining occurred in this area. Placer mining in the streams resulted in loss of riparian vegetation and destablization of the channels. Hard rock mining has resulted in tailings have have and continue to leech heavy metals into the streams. Mining activity is still occuring in this area even today, but to a much lesser degree and with more environmental safeguards in place. CERCLA mining clean-up activities are being proposed for this area.

The watershed status in the Eagle Creek watershed is designated as not properly functioning, (although it includes some tributaries that may be considered either properly functioning or functioning-at-risk). This means that watershed and aquatic integrity has been compromised from past disturbances. As described above, watersheds that are not properly functioning are considered a low priority for watershed restoration and improvement. The West Fork of Eagle is listed as a 303d watershed by the Environmental Protection Agency. This status is the result of the relative sensitivity of the watershed system (its soils and landtypes, and the predominance of sensitive snowpacks), and from its history of development. The West Fork of Eagle Creek has also been identified as a priority watershed for bull trout recovery.

Beneficial uses within the Eagle Creek Watershed are Salmonid Spawning, Cold Water Biota, and Recreation as listed in the 1992 Idaho Water Quality Status Report by the Department of Enviornmental Quality.

Within the Eagle Creek Watershed, a total of 24 miles of road has had watershed improvement work completed. Work included removal of 38 road channel crossings, stabilizing unstable road sections, and erosion control. Included in the 24 miles of road removal, 5 miles of riparian road was removed in the East Fork of Eagle Creek, over 1 mile of road was recontoured up Nocelly Gulch, and 1.5 miles of riparian road was recontoured up Cottonwood Creek. Sections of these riparian roads directly encroached on the streams in numerous locations. Funded foreseeable featured watershed improvement work associated with the Upper Cottowood EA will remove .13 miles of encroaching road and an additional 2 road channel crossings low in the watershed.. This work is planned for the summer of 2001.

**Streamflow Regime**: The hydrology of the Eagle Creek Watershed and all its major tributaries has been altered by past timber harvest and road building, in four respects. First, it can be inferred, from the peak flow increases, that periods of spring peak flow are longer in duration (Troendle and King, 1983). The timing of runoff from increased water yields is dependent upon air and snowpack temperature and exposure to solar radiation, which are controlled by elevation, aspect, slope, and shading from topography and/or vegetation.

Second, data from the Idaho Panhandle National Forests and several studies (Kappesser,1991. Christner and Harr, 1982. Harr, 1981) suggest that peak flows generated by rain-on-snow events can increase substantially when the forest canopy is removed by harvest or natural disturbance. Approximately 54% of the Eagle Creek watershed is sensitive to rain-on-snow events.

Third, the effective gradient of some of the channels has been increased. This is evident in the headwater channels that have had large woody debris (pool creators) removed during past timber harvest, and in the main Eagle Creek channels and several of the smaller tributaries that have been straightened by road placement. The effects of peak flows of longer duration, peak flows of increased magnitude, and increased channel gradients is increased stream power. Increases in stream power results in increased probability to create and transport sediment. Increases in monthly peak flows are elevated above natural conditions due to past timber harvest activities and road building. The equivalent clearcut area in the Eagle Creek Watershed is approximately 10%.

Fourth, subsurface flows intercepted by road cuts can be rapidly routed by compacted road surfaces and ditches to stream channels causing an increase in the total runoff. This is a special concern when roads are located low in the watershed and where roads traverse clearcuts. Megahan (1983) noted that the volume of water intercepted by road cuts below clearcuts that have been burned, increased by 96 percent.

**Stream Channel Stability:** Roads which encroach into stream channels or flood-prone areas are common in Eagle Creek, and several of it's tributaries. Encroaching roads constrict the stream, particularly during high flows, forcing large volumes of water through a smaller channel with great erosive force. Road and culvert failures along with channel pattern changes can result in undesirable long-term changes to the stream. Streamside roads are subject to frequent or continual stress of flow against the roadfill, particularly during peak discharges. These roads manifest frequent and often large failures and can be a chronic source of sediment to the stream. Overall within the Eagle Creek Watershed, an estimated 7.9 miles (.18 miles/square mile of area) of riparian road presently occupies the flood prone areas in the valley bottoms.

Increased bedload supply and bed mobility can result from riparian harvest and may result in increases in streambank erosion. Toews and Moore (1982) report streambank erosion was more than 250 percent greater after logging than before in clearcut areas where no buffers strips were left. Within the Eagle Creek Watershed, 8 percent of the linear riparian influenced area has been directly affected by past regeneration harvest. This represents a relatively low amount of past riparian harvest within the watershed, representing minimal effects compared to encroaching roads and road channel crossing failures.

**Water Quality:** Approximately 202 miles of road still remain within the watershed after restoration activities with 150 road channel crossings. The existing road densities 4.53 miles/square mile of area is high with the majority of the roading occurrings in the East Fork of Eagle Creek.. The stream crossing frequency throughout the watershed is approximately 1.8 stream crossings/mile of stream. Each of the road channel crossings, particularly on roads which are no longer maintained, have the potential to plug and subsequently fail. Fills at channel crossings without plugged culverts, may also fail because of exceptionally steep slopes and/or unstable soils. Within the watershed, 42 percent of the watershed is on sensitive landtypes with high landslide and sediment delivery potential, with approximately 25 percent of the miles of road on these same sensitive land types. In addition, sediment has been released from headwater areas through harvest of riparian influenced areas and the "removing" of channel debris. Failure of road channel crossings and the continual bank erosion and road fill failures of the streamside roads are the primary sediment contributors and component of disturbance to the lower to mid elevation areas of the watershed. Water quality in the East Fork of Eagle Creek has also been affected by heavy metals that have leeched from mine tailing as the result of past hard rock mining within the drainage.

**Physical Characteristics**

*Hydrologic Unit Code (HUC):* A hierarchal watershed classification. The first 8 digits of the number represent the Coeur d'Alene subbasin; additional digit pairs indicate watersheds and subwatersheds. The basic analysis unit was the 6th code HUC.

*Drainage Area:* The area of the watershed or watershed area being analyzed, measured in square miles.

*Sensitive Landtypes:* Percent of the drainage area comprised of "sensitive landtypes" susceptible to mass erosion and increased sediment delivery to streams. As a point of reference, watersheds with more than about 30% sensitive landtypes are often very sensitive to cumulative disturbances.

*Sensitive Snowpack:* In the Idaho Panhandle, mountain slopes in an elevation band between 2,500 and 4,500 feet can produce rapid melt and runoff during warm, moist winter storms. The percentage of the watershed within this band partially characterizes the overall sensitivity of the watershed. As a point of reference, watersheds with less than 30% of sensitive snowpack do not appear to be very responsive to rain-on-snow events at the watershed scale. Watersheds with greater than 70% of sensitive snowpacks are often highly volatile and very sensitive to other disturbance regimes in terms of runoff from the stream system. These parameters do not change with forest development, and therefore are not carried into the Environmental Consequences section of Chapter III.

**Qualifications**

*Water Quality Limited Stream Segments:* Section 303(d) of the Clean Water Act requires the States to list water bodies (stream segments and lakes) that do not support beneficial uses, even though BMPs are employed. These are identified as Water Quality Limited. The watershed status has been estimated based on known conditions in the watershed, its sensitivity and resilience, and the disturbance history in the drainage.

*Apparent Watershed Status:* The Geographic Assessment outlined three categories of current watershed conditions: properly functioning, functioning at risk, and not properly functioning. Not properly functioning watershed systems often exhibit rapid adverse trends and may not fully support beneficial uses. Watershed systems with this classification are the lowest priority for watershed restoration and improvement (Geographic Assessment, pages 59-61).For a more detailed discussion, see the "Watershed Characterization" report of that document.

**Hydrological Regime**

*Estimated Peak Flow:* The estimated peak flow that is expected to occur on the average about every two years ($Q_2$); measured as cubic feet per second per square mile of drainage area (cfsm).

*Current Runoff Modification:* The current runoff modification is shown as a percent of the "natural" peak month discharge and reflects watershed climate patterns and disturbance history (USDA Forest Service, 1989, 1996).

*Equivalent Clearcut Area (ECA):* The equivalent clearcut area is used to estimate the percentage of hydrologic openings in a watershed and accounts for vegetative recovery since the initial disturbance (USDA Forest Service 1989, 1996).

**Erosion and Sediment**

*Estimated Annual Sediment (tons/mi$^2$/yr):* The estimated annual sediment yield for natural or baseline conditions.

*Current Sediment Load Modification (%):* The estimated annual sediment yield for existing conditions expressed as a percent increase over natural conditions. It is an indicator of the effects of past management activities on the sediment delivered to streams.

*Road Density:* Road density is an indicator of watershed condition reported as the miles of road per square mile of area (miles per square mile) within a watershed. Generally, road densities are high throughout northern Idaho and a trend toward lower road densities is desired for a variety of resource benefits (Integrated Scentific Assessment for Ecosystem Management in the Interior Columbia Basin, page 67).

*Sensitive Road Density:* Sensitive road density is a measure similar to road density, except that the roads considered are only those on sensitive landtypes.

**Channel Conflicts** - *Riparian Road Density:* Estimated from maps, photos, and GIS data to determine road segments within 300 feet of any perennial stream. This is presented in miles per square mile.

**Stream Crossings**

*Stream Crossing Frequency:* Stream crossing frequency is the number of road crossings divided by the number of miles of stream in a watershed (number per mile of stream).

*Fish Migration Barriers:* The number of inventoried road crossings which create fish migration barriers.

**Table III-7. Watershed Characteristics, Condition Indicators, and Dominant Watershed Disturbances in the Eagle Creek Watershed.**

| | |
|---|---|
| **Physical Characteristics** | |
| HUC: 170103012708 | |
| Drainage Area (square miles) | 44.6 |
| Sensitive Landtypes (percent of watershed) | 42 |
| Sensitive Snowpack (percent of watershed) | 54 |
| **Qualifications** | |
| Is all or part listed as Water Quality Limited? | Yes |
| Apparent Watershed Status | Not Properly Functioning |
| Subwatersheds used for analysis | Ucelly |
| **Hydrologic Regime** | |
| Estimated Peak Flow (Q2 cfsm) | 26 |
| Current Runoff Modification (percent of peak) | 6 |
| Equivalent Clearcut Area (percent of watershed) | 9.7 |
| **Erosion and Sediment** | |
| Estimated Annual Sediment (tons/mile2/year) | 15 |
| Current Sediment Load Modification (percent) | 116 |
| Road Density (miles/mile2) | 4.53 |
| Sensitive Road Density (miles/mile2) | 1.26 |
| **Channel Conflicts** | |
| Road Encroaching at Bankfull Stage (miles) | 0* |
| Riparian Road Density (miles/mile2) | .18 |
| **Stream Crossings** | |
| Stream Crossing Frequency (#/mile of stream) | 1.8 |
| Number of Fish Migration Barriers | 0** |

* *The total miles of encroaching road has not been inventoried at this time. Along the 7.9 miles of riparian road within the drainage, sections are known to encroach directly on the stream channels.*

** *Inventories for fish migration barriers has not been conducted at this time, however based on general ground knowledge of the area, none are thought to be present.*

# Environmental Consequences

## Methodology

As stated earlier, the project area was analyzed on at least two scales: the local site or tributaries where activities occur and the cumulative effect watershed. The cumulative effect watershed is the logical culmination point of water flow where the effects of the distributed project activities could possibly integrate or synchronize over time and space and be addressed cumulatively in a larger watershed.

For purposes of comparing alternatives and analyzing the effects of each alternative, a table of watershed effects is presented. These effects include, but are not limited to, watershed restoration activities. The methods used in this section are the same as were used in the Affected Environment.

The table consists of measurement indicators and their units of measure, and the estimate of that parameter over the periods of time during and following the project for each alternative. The table is followed by a narrative discussion of direct, indirect, and cumulative effects in each watershed at the appropriate spatial and temporal scale. For a more detailed explanation of the indicators used, please refer to the "Watershed Hydrologic Response Estimate, and WATSED" discussion (Project Files, WATSED Interpretation Report).

**Sediment Yield (%)**: Sediment yield, reported as the percent change above the estimated natural conditions, was estimated using the WATSED model (Project Records, Watershed Hydrologic Response Estimates and WATSED Summaries) for the year 2001. Proposed timber harvest units, temporary road construction, and site-preparation treatments are included in the analysis. WATSED was not used for evaluating the effects of restoration projects.

**Peak Flow (%):** The change in runoff estimated by WATSED (Project Records, Watershed Hydrologic Response Estimates and WATSED Summaries) expressed as a percent change from the estimated natural peak month discharge.

**Net Stream Crossings (#):** The change in the number of stream crossings compared to the existing conditions. These values reflect increases from new road construction and decreases from watershed restoration activities.

**Net Roads (mi): T**he net change in road mileage in each watershed. These values reflect increases from new road construction (permanent) and decreases from watershed restoration activities. Proposed temporary roads are not included in this calculation because they would be hydrologically inert following project activities.

**Net Encroaching Roads (mi):** The net change in inventoried road miles that hydraulically modify stream flows at bankfull stage. Restoration such as road obliteration can reduce this value.

**Rain on Snow Analysis:** The project consists primarily of widely scattered, relatively isolated patches of beetle-infected trees with a few areas of high mortality that will be regenerated. Alterations in the canopy cover from past harvest have, in all probability, altered the magnitude, timing, and duration of snowmelt in the watershed under existing conditions. However, the risk of increasing the magnitude of rain on snow events would be negligible under the Little Ucelly Heli Bug proposal because few openings would be created in addition to those that would be created under the No-Action Alternative (Project Files, WATSED Report, "Equivalent Clearcut Acres," pages 27-28). Harvest of dead trees mimics the loss of forest canopy that would occur under the no-action alternative as a result of beetle mortality. No appreciable new openings would be created. The magnitude of change for rain-on-snow events, if any exists, would be insignificant under either of the action alternatives.

## Effects Common to All Alternatives

There are several common, or typical effects, that would occur with any action alternative and are discussed below. Many of these effects are related to the watershed restoration activities such as removal of encroaching roads. In the discussion, the effects of not removing the encroaching road (or other action) also is discussed.

### *Effects of Encroaching Roads*

**Effect on stream condition**: Encroaching roads occupy the active flood prone area associated with the stream, or the active channel itself with road fill. Those road sections reduce capacity of the stream at flood stages, alter flow patterns, increase local velocities, redistribute sediment loads, and compromise the function of the stream's riparian areas. During flood flows, the depth of flow is increased, and normal flow patterns are disrupted. This often causes scouring of opposing stream banks and undercuts opposing hillslopes, which in turn is an erosion source that increases sediment input into the stream. Sometimes the scour undercuts the opposing slope which destabilizes it and initiates a mass failure (such as a slump or debris avalanche) of material into the stream. In some cases, the road constricts the channel enough that the natural meanders are straightened and stream slope is steepened. This can result in rapid adjustments by the stream to regain its balance with the water flow and sediment load. The result is an unstable stream which will compromise the support of beneficial uses.

**Effect on sediment**: Roads located close to streams usually deliver more sediment to streams than other roads for two reasons: 1) roads in close proximity to streams are more likely to be subject to the erosive forces of running water; and 2) eroded materials do not have to travel far to be delivered to the streams. The closer a road is to the stream, the smaller the expanse of forest floor and its rough materials available to capture and store sediment.

**Effect of removing encroaching road segments**: Removal of encroaching roads would reduce sediment delivery in the short and long-term. Improvement in stream condition and habitat in terms of clarity, accumulation of sediment, loss of cover, erosive velocities, etc., would occur at the road removal site and immediately downstream.

During and after road removal, some fine sediment would likely be delivered to the water. The majority of sediment delivered to the stream would be in the form of suspended sediment. The suspended sediment would route through the stream system quickly and the primary effect would be turbidity (loss of clarity of the water). The increase in turbidity would be measurable for a short time immediately following disturbance and would be evident for short distances downstream from the fill removed (generally less than 1,000 feet). The amount of sediment from road fill removal would be low, especially when compared to the long-term reduction that would result. Standard Best Management Practices (including silt fences, mulch, and coffer structures to de-water the work site) as well as other erosion control techniques would minimize the amount of sediment delivered in the short-term. The re-establishment of effective vegetation would essentially eliminate long-term sediment inputs.

### *Tree Mortality and its Effect on Stream Temperature*

At the tributary scale, stream temperature would not be expected to change in most watersheds under any alternative including the No-Action Alternative. No harvest would occur where shade or cover to the stream would be affected under any action alternative. Some trees that are currently providing shade to streams have already died or may die soon as a result of the Douglas-fir beetle attack. The loss of shade from this mortality would not be expected to increase water temperatures locally or downstream due to one or more of the following: high mixing capacity of most mountain streams, inflow of subsurface water, and/or the low amount mortality of shade trees in riparian areas.

### *Effects of Stream Crossing Failures*

**Effects on abandoned or unmaintained roads**: Extensive road networks were constructed prior to the 1980's throughout the analysis area. Typically these older roads were designed for a useful life of 20 years, including the crossing structures. The majority of these roads presently are stabilized with vegetation, and are not actively delivering sediment to stream channels. Although often brushed in, many of these roads still have culverts and fills at stream crossings. Abandoned and unmaintained roads, including stream crossings, can be expected to fail over time. These failures are usually associated with relatively infrequent hydrologic and climatic events. A typical example is when warm, moisture-laden air masses move into the region over a watershed that is dominated by a ripe snowpack (near freezing temperature and loaded with water), that is ready to melt. The results are often a rapid and flashy runoff that is referred to as a "rain-on-snow" flood. During these events, water flow can exceed the capacity of the crossing structure (such as a culvert pipe or bridge), or debris blocks the inlet. The water rises and overtops the fill, eroding it (often en masse), and depositing the material into the creek. In some locations, pore water pressure in the soil actually destabilizes the fill material and the hillslope, causing them to slump into the creek.

**Effects on sustained grade roads**: Stream crossings on steep sustained grades are sometimes inadvertently installed. At these crossings, the downhill approach of the road is lower than the road surface at the stream crossing. When the structure is blocked by debris or its capacity somehow is exceeded, the water overtops

the pipe and begins flowing down the road. Instead of flowing directly over the road and back into the channel, it flows downslope on the road or in the ditch line until an obstruction, such as a low point in the road, forces the flow across the road surface and onto the fill. The water often erodes the road surface, causing gullies in the road tread, road fill, and the slope below the fill as the water travels back to the stream. The amount of sediment delivered to the stream from this type of erosion would exceed the amount of sediment delivered from only the stream crossing failure and would include erosion from the crossing, the ditch line, the road prism and the fill. In some cases, failure of a crossing and subsequent overflow can initiate mass failure of the hillslope above the failure.

Flow relief drivable and hardened dips can be installed at stream crossings where flows could escape as described down the road. This would reduce the amount of sediment delivered to the stream for the long term. Some sediment may be delivered to the stream during installation of the dips, but the amount would be small and not expected to reduce water quality or alter stream condition.

**General effects**: The failure of large fills at stream crossings or encroaching roads inundates the stream with sediment and overwhelms its capacity to move it. The deposited materials tend to remain intact as a mass or 'slug' of sediment that can severely alter smaller streams by filling both channel and flood prone areas. The result is a loss of channel capacity and habitat that supports beneficial uses. The sediment mass begins to disperse as it moves downstream and enters larger streams, which reduces the channel effects of the single failure. However, multiple failures in a single watershed can result in long-term adverse effects downstream.

## Effects Common to Both Action Alternatives

### *Effects of Increased Sediment due to Road Use*

Use of roads during project activities would increase sediment delivered to streams. The heavy use of vehicles, mainly logging trucks, and frequent surface blading of the road surface would increase the amount of sediment eroded during summer rainfall events. Some of this sediment may be delivered to the stream where the road is near the stream or when runoff is carried down a ditch line. The amount of increased sediment would be expected to be immeasurable and would not reduce water quality or affect stream condition.

### *Sediment Delivery Due to Harvest and Yarding Activities*

No sediment would be expected to be delivered to streams from logging yarding activities because of the implementation of Best Management Practices. Yarding activities also would be located beyond the riparian areas of streams or lakes. Undisturbed lands between all logging activities and Riparian Habitat Conservation Areas (RHCAs) would trap any sediment that may reach the margins of disturbed areas (Belt, G.H., et al, 1992). All landings would be located outside of RHCAs and designed to minimize the risk of sediment delivery and to prevent mass failure potential.

### *Effects to Stream Temperature as a Result of Loss of Riparian Trees*

Water temperature is the principal regulator of biological activities for aquatic organisms and often the limiting factor in their survival. Direct solar radiation is the main factor that can be altered by management activities. The proposed activities would not impact existing stream temperatures. First, field reviews suggest that the number of dead and dying riparian trees is very low and that these trees are scattered throughout stream basins. Second, there would be no harvesting of riparian trees under the Little Ucelly Heli Bug project.

## Direct and Indirect Effects to Local Sites and Reaches (Ucelly Gulch and Prichard Face)

Under Alternative 2, green tree harvest would result in an additional 3 scattered equivalent clearcut acres respectively over the No Action Alternative. Under Alternative 3, green tree harvest would result in an additional 9 equivalent clearcult acres over the No-Action Alternative. These acres are based on some expected green tree loss during operations to harvest dead and dying timber. The number is higher under alternative 3 due to loss of corridor volume and right-of-way timber. Due to the low level of harvest no direct or indirect effects to beneficial uses are anticipated from mortality of dead trees under any of the alternatives, (including the No-Action Alternative) to tributaries of Ucelly or the Prichard Face. The implementation of Best Management Practices (BMPs) and adherence with the Inland Native Fish Strategy would provide protection for riparian habitat.

The direct and indirect effects of canopy removal at localized sites under all alternatives within Ucelly Creek and the face tributaries would be altered snow accumulation patterns and melt rates. Some change in timing, and increases in the magnitude and quantity of flow would occur under all alternatives at individual sites. The increase in flow would be primarily due to the mortality of trees from the Douglas-fir beetle. Additional mortality due to harvest of green trees would not result in a measurable increase in magnitude or quantity of flows for any of the alternatives. No measurable effects would occur in stream channel conditions.

## Cumulative Effects at the Watershed Scale

The cumulative effects analysis area for the Little Ucelly Salvage Sale extends from the headwaters of Eagle Creek to the confluence with Prichard Creek. All cumulative effects for the watershed are estimated at the outlet of Eagle Creek. This was a logical unit for analyzing cumulative effects as well as the largest area over which effects would be measured. Two small salvage units crosses over the ridge into the Face of Prichard Creek. These two units (totaling 6 acres of salvage) are discussed separately for direct, indirect, and cumulative effects.

At the confluence of Eagle Creek and Prichard Creek, no measurable changes in watershed hydrology would result from proposed management activities. Activities are situated high in the watershed, well away from the streams, and comprises only .01 percent in ECA's. Analysis using the WATSED model predicted no change from management activities (Table III-1) (See WATSED Report, Project Files). Peak flows and flood frequency would not be affected.

There would be no increase in sediment yield at the confluence of Eagle Creek and Prichard Creek from management activities under Alternative 2. There would be a low level of harvest, no road construction or reconstruction, and Inland Native Fish buffers would be maintained on all streams. Under Alternative 3, there would be 0.2 miles of new temporary road construction and 0.5 miles of road reconstruction. These sections of road are located high on the slope, near the ridge lines, well away from any streams, and not on sensitive landtypes. As a result, the WATSED model predicted no increase in sediment yield under either action alternative over what would occur under the No-Action Alternative (Table III-1).

Cumulatively, there would be no measurable short- or long-term effects to stream condition or hillslope hydrology. No adverse effects to beneficial uses can be expected under any of the alternatives. Risk of future sediment loading, primarily at the road channel crossings and along road sections that directly encroach on the stream channels, has been substantially and permanently reduced with past watershed improvement activities. The pollutant of concern (sediment) that has caused the Eagle Creek Watershed to be listed as a Water Quality Limited has been substantially reduced in the both short- and long-term because of reductions stream crossings and encroaching roads.

At the Watershed scale, there would be no measurable direct, indirect or cumulative effects on the timing, magnitude or quantity of flow under any of the alternatives for the six acres of salvage outside of the Eagle

Creek Watershed on the Prichard face. With no road construction and only 0.7 miles of reconstruction (alternative 3), no increase in sediment is expected over the No-Action Alternative, with no adverse affects to any of the beneficial uses. Local or watershed-scale changes in flood frequency would not be measurable or affect either the stream or channel structure. Alterations in hillslope processes would not affect values or beneficial uses.

In the following table the sediment yield and peak flow change estimates represent the cumulative expected responses as a result to forest management activities over time and throughout the watershed represented. The estimates assume standard Best Management Practices and Soil and Water Conservation Practices are employed. The three "net change" lines in the table are an accounting of the driving disturbance and restoration elements. An explanation of each measure of change displayed in the table is provided under "Methodology" at the beginning of the Environmental Consequences for the Eagle Creek Watershed.

**Table III-8. Projected watershed response in the Eagle Creek Watershed (Eagle Creek Tributary), by alternative.**

| Measure of Change | Alt. 1 | Alt. 2 | Alt. 3 |
|---|---|---|---|
| Sediment yield (%) | 116 | 116 | 116 |
| Peak flow (%) | 6 | 6 | 6 |
| Net stream crossings (#) | -2 | -2 | -2 |
| Net roads (miles) | -0.13 | -0.13 | -0.13 |
| Net encroaching road (miles) | -0.13 | -0.13 | -0.13 |

*Cumulative Effects of Reasonably Foreseeable and Ongoing Activities*

The timber harvest associated with the Small Sales EIS is generally located high on the hillsides and away from riparian areas. A portion of the volume is to be helicopter logged and no new road construction would occur. Most of the timber being harvested under this treatment is dead. The activities proposed under the Small Sales EIS project within the Eagle Creek area are not expected to have negative effects on existing watershed conditions.

The Stutzke mining project has not been approved at this time. Mitigation measures would be incorporated into the development of the mining project to minimize impacts to the water resource. The CERCLA repository project is also in the development stages, and mitigation measures would also be incorporated into this project to minimize impacts to water resources. The removal of old mine tailings as a result of this project would improve water quality in the East Fork of Eagle Creek by removing a source of heavy metal contamination.

The preferred fuelwood gathering planned for some of the roads in this area is not expected to have any effect on the watershed as harvest is an individual tree selection of dead trees along roads that are up out of riparian areas.

The subdivision and development of the private ownership in the lower reach of the West Fork could produce negative effects to the watershed in that area with increased development in the floodplain and loss of riparian vegetation. Recreational dredging on private ownership near the mouth of Eagle Creek would also be seen as having a negative impact to the watershed. The activities associated with Little Ucelly would not contribute to adverse effects caused by private management activities.

*Cumulative Effects of Opportunities*

If implemented, the obliteration of three-quarters of a mile of road and restoration of one stream channel site would have a minor positive net benefit on water resources. The ecoburning of 3 acres where much of the canopy has already been lost to root disease would not create any negative effects due to its position on the slope and lack of riparian zones in the area. Treatment of noxious weeds would have no effect on the water resources as treatments would follow standards that minimize risk to riparian vegetation and aquatic resources.

## Consistency With the Forest Plan and Other Applicable Regulatory Direction

*Forest Plan Standards*: All alternatives are consistent with Forest Plan Standards for water (IPNF Forest Plan, Chapter II, page II-33) because of 1) the low level of harvest, 2) the distance between harvest units and the stream channel, and the 3) implementation of Best Management Practices (BMP's). Models, field data, monitoring data, and professional judgment were used in the analysis to approximate the effects of activities on the water resource.

*Protect water quality per the Clean Water Act and to meet or exceed States' Water Quality Standards*: The Forest Service has agreements with the States to implement Best Management Practices (BMP) or Soil and Water Conservation Practices for all management activities to meet the objectives for Forest Practices. Monitoring would be designed to demonstrate the implementation of BMPs and provide feedback concerning their effectiveness in protecting water quality. Watershed conditions that contribute to water quality that is impaired would be improved through ongoing and foreseeable restoration projects. Riparian areas would be managed to meet objectives for riparian-dependent resources (fish and wildlife habitats, water quality, stream channel integrity, vegetation, public water supplies).

*Inland Native Fish Strategy*: The Inland Native Fish Strategy has been implemented as amendments to the Forest Plan of the Idaho Panhandle Forests. All action alternatives would be consistent with this direction. The amendments require mitigation of environmental effects of management decisions. Specified riparian management goals and objectives have been developed, and Riparian Habitat Conservation Areas (RHCA) are defined and delineated. Riparian management and Riparian Management Objectives (RMO) are addressed using the Inland Native Fish analysis and supportive data, and watershed analyses. The strategy also specifies standards and guidelines, which must be applied for certain activities in RHCAs. These are incorporated into the action alternatives as specified in Chapter II.

*Clean Water Act and Water Quality Limited §303(d) Listings*: Under authority of the Clean Water Act, the EPA and the States must develop plans and objectives (TMDLs) that will eventually restore listed stream segments. In lieu of those plans, Forest Service will demonstrate or find that their actions will not result in a net substantial increase in the pollutant of concern or prohibit or delay potential recovery (IDHW, 1997; USFS, 1995).

All alternatives would be consistent with the Clean Water Act and Water Quality Limited Listings.

# FISHERIES

## Regulatory Framework

The National Forest Management Act (NFMA) (1976) requires that the Forest Service manage for a diversity of fish habitat to support viable fish populations (36CFR219.19). Regulations further state that the effects on these species and the reason for their choice as management indicator species be documented (36CFR219.19(a)(1). The 1969 National Environmental Policy Act (NEPA) requires analysis of projects to insure the anticipated effects upon all resources within the project area are considered prior to project implementation (40CFR1502.16). Section 7 of the 1973 Endangered Species Act (ESA) includes direction that Federal agencies, in consultation with the United States Fish and Wildlife Service, will not authorize, fund, or conduct actions that are likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitat. Executive Order 12962 (June 7, 1995) states objectives "to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities by: (h) evaluating the effects of Federally funded, permitted, or authorized actions on aquatic systems and recreational fisheries and document those effects relative to the purpose of this order."

The Forest Plan for the Idaho Panhandle National Forests (IPNF) provides management goals and objectives for the protection of the fisheries resources. The Inland Native Fish Strategy (INFS) amended the IPNF Forest Plan in August 1995 and contains additional standards and guidelines to protect the aquatic environment.

Proposed activities in the Little Ucelly Heli Bug EA were analyzed with respect to these regulatory requirements in the Fisheries sections. Additional regulatory requirements related to fisheries resources (*e.g.* Clean Water Act and Idaho Water Quality Standards) are addressed in the Water Resources sections.

## Methodology

### Methodology Used to Identify Existing Conditions

Fish habitat surveys were conducted on the middle reach of the East Fork of Eagle Creek by the Forest Service in 1993. The survey area was primarily low gradient riffle (70 percent) and run (14 percent). Pool length only made up 5 percent of the reach. Pool depth averaged 1.2 feet with an average of only 52 cubic feet of area within the pool. More than half of the pool structure was a created by bedrock formation. Pool cover was found to be moderate with most of the cover associated with whitewater, boulders, bank undercuts and small wood debris. Department of Environmental Quality fish surveys in the East Fork in 1996 found cutthroat trout, sculpin, and brook trout present in multiple age classes (Project Files – Fish).

Fish habitat surveys were conducted on the middle reach of the West Fork of Eagle Creek by the Forest Service in 1993 and 1994. One survey area showed primarily low gradient riffle (49 percent) and run (26 percent). Fourteen percent of the channel was braided with approximately 11 percent in pools. Pool depth averaged 1.9 feet with an average cubic foot area of 249 cubic feet. Most of the pool habitat was created by bedrock, large woody debris, and rootwads. Pool cover was found to be moderate with most of the cover associated with large and small woody debris, and by whitewater. The other survey area was primarily made up of run (36 percent) and low gradient riffle (33 percent). Pool volume accounted for 20 percent of the reach. Pool depths averaged 1.6 feet with an average of about 250 cubic feet of area within the pool. Most of the pool habitat was created by large woody debris and artificial structures. Pool cover was found to be moderate with woody debris and terrestrial vegetation providing most of the cover. Department of Environmental Quality fish surveys in the West Fork in 1996 found sculpin, cutthroat trout, and brook trout present in multiple age classes (Project Files – Fish).

Flood events in 1964, 1974, and 1996 have affected channel stability in the lower to middle reach of the East and West Fork of Eagle Creek. Instream sediments are high due to past road and culvert failures, peak flow increases, and road constriction of the channels. The East Fork of Eagle has also been signficantly impacted by past mining activities with direct impacts to the channel and with the presence of heavy metals. Surveys show that pool habitat is more plentiful in the West Fork. The lower reaches of the West Fork and Eagle Creek run through private ownership. Stream conditions in this area are degraded as a result of local and upstream impacts and from loss of riparian vegetation on private ownership.

## Methodology Used to Determine Environmental Consequences

Existing conditions were established for primary habitat components believed to be influencing the productive potential of the Management Indicator fish species within the analysis area. Changes to these habitat components by the action alternatives are addressed by measuring changes in physical structures that affect the habitat components important to fish and are effected by management actions. Habitat components of interest include stream temperature, aquatic habitat diversity, cover complexity, and channel stability.

- ***Stream temperature*** is one indicator of aquatic habitat conditions for this project area (Hicks et al. 1991). Stream temperature information collected during stream surveys is evaluated in relation to Idaho State Water Quality Standards for designated beneficial uses. The direct removal of riparian vegetation through road construction and timber harvest can indirectly change stream temperature by increasing sunlight to the water. If this increases outside the range that cutthroat trout evolved, detrimental effects may occur (6-17 C; Bjornn and Reiser 1991). Because of the low water temperature requirements of bull trout any increase in stream temperature would likely have a negative effect on this species.

- ***Habitat diversity*** (composition and quality) is another indicator of aquatic habitat conditions and is assessed as to the quantity and degree of development of various types of aquatic habitat (*e.g.* pools, riffles, etc.). Stream segments possessing numerous habitats with a wide variety of stream velocities, water depths, and physical habitat configurations are considered more diverse and have a greater potential for meeting the habitat requirements of naturally reproducing trout populations. Removal of riparian vegetation, which reduces instream wood, along with increases in bedload and sediment, and changes in stream morphology can affect the composition and quality of habitat.

- ***Cover complexity*** is also an indicator of habitat conditions and is evaluated by the degree of habitat partitioning by various structural elements such as large woody debris, boulders, and undercut banks. This physical separation within habitat units can help maximize fish production by decreasing competition and aggression, reducing predation, increasing carrying capacity, and producing micro-habitat conditions that minimize energy requirements and provide refugia for fish inhabitants. The same information used to reflect changes in habitat diversity are used to display changes to cover complexity, particularly instream wood and channel morphology.

- ***Channel stability*** is another indicator for fish habitat conditions because it influences the quality of pool habitat as well as helps to establish the trend for aquatic habitat conditions. Channel stability is discussed in the "Watershed" section of this EA and incorporated into the assessment of fisheries resources. The relationship between upslope processes and stream channel condition were also assessed by incorporating the analysis of the hydrologic condition within the project area. Changes to channel stability are highly dependent upon changes in water yield and timing, and bedload movement. Other selected features that are believed to influence the condition of riparian areas, and subsequently fish habitat are also discussed.

Because of the difficulty of directly measuring stream habitat components as well as delay between land management actions and altered stream conditions, the cumulative effects analysis was based on management actions that could alter stream conditions. The relationship between the habitat component and the measurement of change is discussed below.

- ***Riparian Harvest:*** For this EA the amount of riparian harvest is a measurement for changes in stream temperature, habitat diversity, cover complexity, and channel stability. The direct effect of riparian harvest is the reduction of shade and large wood component near streams. The indirect effect of reducing the amount of streamside vegetation include altering timing and amount of sediment delivery, wood loading in stream, stream temperature, and the hydrologic regime (Meehan et al. 1991). The cumulative effects of riparian harvest can be reduced egg-to-fry survival (by increased fines in reeds) and reduced adult survival (by increasing temperature outside of tolerated range and/or by altering carrying capacity by reducing highly utilized habitat) of Management Indicator species. For purposes of consistency in this analysis, an average distance of 300 feet from fish-bearing streams will be considered as riparian habitat. Although not all the vegetation within this 300 foot buffer will consist of vegetation that is dependent on the water table, it does provide conditions necessary to maintain these types of vegetation (FEMAT, 1993). In addition, riparian harvest within 75 feet of intermittent streams will be considered riparian harvest. By maintaining riparian habitat, the Forest will trend toward meeting the large woody debris Riparian Management Objective of the Inland Native Fish Strategy.

- ***Sediment Delivery Risk***: The risk of sediment delivery will be tracked by risk of failure at crossings and temporary/permanent road constructions. A majority of these risks are located where roads cross streams. The direct effect of sediment delivery at roads can be reduced passage of fish. The indirect effects of these failures include increased fine sediment in redds, and channel simplification due to torrents. The cumulative effects of additional sediment delivery can be reduced egg-to-fry survival (by increased fines in redds) and reduced adult survival (by altering carrying capacity by reducing highly utilized habitat such as pools) of Management Indicator Species. The cumulative effects related to road failures can ultimately lead to a decline in fish number (Furniss et al. 1991). Reducing the amounts sediment entering streams will result in a trend toward the Pool Frequency and the Width/Depth Riparian Management Objectives.

- ***Increased Fish Passage:*** The placement of culverts at road crossings alters the ability of fish to utilize stream habitat above the culvert. The direct effects of modifying these culverts is increased fish passage. The indirect effects of fish passage is the movement of fish to portions of streams not previously used but also replacement activities may increase short-term sediment production. The cumulative effects of increased passage is the increased probability of persistence of the Management Indicator Species. Passage for this analysis will be focused on spring migration of adult westslope cutthroat and summer/fall migration of bull trout.

- ***Reduced Length of Encroaching Roads:*** The fourth of these measures of change will be the amount of encroaching roads removed as a result of restoration activities. Direct effects of reducing the length of encroaching roads is reduced flow velocity. Indirect effects are an increase in habitat complexity and fish carrying capacity. Cumulative effects are increased numbers of fish. Because valley bottom roads pose a significant risk for fish (Dose and Roper 1994, Hick et al. 1991), reducing these roads is extremely important to maintaining the long-term viability of fish species (including the Management Indicator Species), as well as maintaining terrestial species within the basin that rely on riparian habitat. By reducing the amounts of encroaching road the result will be trending towards the Pool Frequency and the Width/Depth Riparian Management Objectives.

The cumulative effects area is based on the entire Eagle Creek basin. Eagle Creek is a Sixth-scale code watershed. The Hydrological Unit Code (HUC) for this watershed is number 170103012708.

# Existing Conditions

## Fish Presence

The cumulative effects area contain approximately 23.4 miles of fish-bearing stream segments. Fish species that may inhabit streams in this area include native populations of westslope cutthroat (*Oncorhynchus clarki*), bull trout (*Salvelinus confluentus*), mountain whitefish (*Prosopium williamsoni*), northern pike minnow (*Ptychocheilus oregonensis*) (formerly squawfish), large-scale sucker (*Catostomus macrocheilus*), torrent sculpin (*Cottus rhotheus*.) shorthead sculpin (*Cottus confusus*), and possibly longnose dace (*Rhinichthys cataractae*) and redside shiner (*Richardsonius balteatus*). Introduced fish species include populations of rainbow trout (*Oncorhynchus mykiss*) and brook trout (*Salvelinus fontinalis*) (Data on file at the Coeur d'Alene River District, Simpson and Wallace 1978). Fish that are the product of hybridization between native cutthroat trout and exotic rainbow trout and between native bull trout and exotic brook trout may be present. The distribution of some of these fish within streams in the cumulative effects area can be found in the table below.

The current condition and distribution of the fisheries resources within the area analyzed with this EA were established by utilizing the best available information including interpretation of information from stream inventories, field reviews, historical records, aerial photographs, analysis of watershed conditions, published scientific literature, discussions with Fisheries Biologists from the Idaho Department of Fish and Game, the United States Fish and Wildlife Service (USFWS), and the Idaho Division of Environmental Quality (DEQ), and comprehensive knowledge of the fisheries resources in the Coeur d' Alene basin.

Westslope cutthroat trout, brook trout and sculpin have been surveyed and are present. A snorkling survey in the East Fork of Eagle Creek in 1990 documented that one bull trout was present. However, additional snorkling surveys in the following year were unable to verify that occurrence.

Fish access is present within the Eagle Creek watershed. There are no known migration barriers. Three electro-shock fish surveys have been completed in Eagle Creek. Each survey area covered approximately 500 feet of the reach. Fish populations in the analysis area consist predominately of Westslope cutthroat trout (*Onchorhynchus clarki lewisi*). Westslope cutthroat trout are known to be utilizing streams within the analysis area for migration, spawning, rearing, and possibly over-wintering. Bull trout (*Salvenlinus confluentus*) have been found in the Coeur d'Alene River and Lake (IDF&G, 1989) but more recent surveys (Dunnigan, personal communication) show no indication of their presence. Individual fish, however, have been reported within the mainstem Coeur d' Alene River, Prichard Creek and the Little North Fork Coeur d'Alene River, however these reports were not verified by a fish biologist. Snorkling surveys in the East Fork of Eagle in 1990 did report the presence of a bull trout, however, follow-up surveys did not verify that any bull trout were present. Nonetheless, westslope cutthroat trout and bull trout have been selected as appropriate Management Indicator Species for the fisheries analysis of the Little Ucelly project. These species are indicators for all the cold water biota within the stream segment (Meehan 1991). No rainbow trout or mountain whitefish were found during surveys. Since the surveys were a limited sampling, it may be possible that the species are present even though not found during surveys.

Due to the large number of fish species within the cumulative effects area, analysis of direct, indirect, and cumulative effects to fish uses the concept of Management Indicator Species (MIS). Under this concept, larger groups of organisms or communities are believed to be adequately represented by a subset of the group (Idaho Panhandle National Forest Plan 1987). The use of Management Indicator Species within the area affected by this EA is simple since historically the area was dominated by cold water biota and these species are sensitive to the types of land management action proposed under most alternatives (Meehan 1991). The Forest Plan identifies westslope cutthroat trout and bull trout as potential Management Indicator fish species for the effects of management actions on fisheries and they are used for that purpose in this document. The life histories of one additional species listed on the Regional Foresters sensitive species list, the torrent

sculpin, are included below. Since torrent sculpin is also a cold water species, the effects of this action to this species would be similar, where these species occur in the watershed analysis area, and is covered under the effects to the Management Indicator Species. Two other sensitive species, the burbot and redband cutthroat, will not be addressed in the EA because they are not known to occur in the Coeur d'Alene Watershed (Simpson and Wallace 1978).

### Westslope Cutthroat Trout

Westslope cutthroat trout are listed as "Sensitive" by Region 1 of the USDA Forest Service and also listed as "species of special concern" by the State of Idaho. In addition, the U.S. Fish and Wildlife Service (USFWS) lists westslope cutthroat trout as a "Species of Concern" with respect to section 7(c) of the 1973 Endangered Species Act (ESA) (3/2/98 letter, FWS 1-9-99-SP-158). This species is currently under review for listing under the Endangered Species Act.

Westslope cutthroat trout are native to many of the stream segments in the analysis area. Their preferred habitat is cold, clear streams that possess rocky, silt-free riffles for spawning and slow, deep pools for feeding, resting, and over-wintering (Reel 1989). Pools are a particularly important habitat component as cutthroat trout occupy pool habitat more than 70% of the time (Mesa 1991). Other key features of cutthroat habitat are large woody debris (LWD) for persistent cover and habitat diversity as well as small headwater streams for spawning and early rearing.

Resident, fluvial, and possibly adfluvial life history strategies of westslope cutthroat trout are likely present within the watershed in the analysis area. Resident populations remain in river tributaries throughout their life. Migratory populations (fluvial and adfluvial fish) use river tributaries for early rearing and spring spawning as adults, but typically migrate to river (fluvial) or lake (adfluvial) habitat as they mature. In the fall, fish that have not previously returned to river and lake areas migrate to deeper water where they congregate and over-winter (Bjornn 1975). Streams within the analysis area are utilized by westslope cutthroat trout representing all life history strategies during various phases of their life cycle.

A population status review of the westslope cutthroat trout in Idaho has determined that populations in northern Idaho have declined over their historic distribution with viable populations existing in only 36% of the original Idaho range. The primary cause of the decline was found to be habitat degradation (Rieman and Apperson 1989).

### Bull Trout

Bull trout appear to have more specific habitat requirements than other salmonids (Rieman and McIntyre 1993). Habitat characteristics including water temperature, stream size, substrate composition, cover and hydraulic complexity have been associated with the distribution and abundance (Jakober 1995; Dambacher and others, 1994; Rieman and McIntyre 1993).

Stream temperature and substrate composition are important characteristics of suitable bull trout habitats. Bull trout have repeatedly been associated with the coldest stream reaches within basins.
In a status review of bull trout on the Idaho Panhandle National Forests, stocks from the Coeur d' Alene watershed were considered to be at high risk of extinction (Cross 1992). Genetic analysis has shown bull trout within many sub-basins of Northern Idaho may be unique stocks (B. Rieman, Rocky Mountain Research Station, personal communication), but are closely linked to the upper Columbia River group - one of three major groupings of bull trout throughout the Columbia and Klamath River drainages (Williams, 1997). Bull trout have recently (within the last 10 years) been documented or observed in the main Coeur d' Alene river. However, no individuals are known to spawn within the Coeur d'Alene basin.

It is likely that Bull Trout historically were common in the Eagle Creek watershed. Eagle Creek is thought to be one of the more cold water reaches in the basin. The West Fork of Eagle Creek has been identified as a priority watershed for the recovery of Bull Trout. Management for Westslope Cutthroat trout would provide similar habitats that would favor the possibility of Bull Trout re-establishment. Because of this, Westslope Cutthroat trout will be used as the Management Indicator Species for this project.

## Torrent Sculpin

Torrent sculpin were added to the Idaho Panhandle's sensitive species list March 12, 1999. This species has been found within the mainstem Coeur d'Alene River and larger tributary streams. Their preferred habitat is riffle habitat in medium to wide streams and rivers (Markle et al. 1996). Large adults (>150 mm), however are found in pools. Spawning usually occurs in May and June and occurs in riffles with moderate to swift flows. The range of torrent sculpin overlaps with both westslope cutthroat and historic bull trout and are also a cold water species. This species is assumed present in all larger streams. The lower reaches of Eagle Creek would be considered a large enough stream for torrent sculpin to be present. The possible effects on this species is covered by analyzing effects on the cold-water Management Indicator Species.

## Habitat Connectivity

Environmental conditions in the planning area have been influenced by natural events and processes as well as human activities. Effects of natural disturbances such as volcanic eruptions (such as Mt. St. Helens, Mt. Mazama), historic fires, landslides, and flooding have interacted with other land-evolving processes (for example, geologic up-lift and stream channel down-cutting) to form the basic character of watersheds and the dependent stream resources. Due to variability in the location, frequency, intensity, and ultimately, the effects of natural processes on the physical environment, dynamic landscapes with diverse conditions are formed at various spatial scales. Biological communities including native fish populations led to development of functional ecosystems that are inherently resilient to effects from natural disturbance regimes representing pulse-type disturbance (Reeves *et al.* 1995). Pulse disturbances influence the natural range of environmental conditions that are expected for ecosystems functioning at broad geographic scales but typically allow systems to begin recovering to pre-disturbance conditions after the disturbance.

Natural disturbance regimes and their associated properties (sedimentation rates and other influences on aquatic habitat) have been altered in the cumulative effects area by human activity. Land use activities that have modified natural disturbance characteristics include railroads, roads, flumes/chutes, settlements/towns, grazing, mining, stream modifications (constriction, channelization, diversion, dams, culverts, and cleaning - removal of woody debris), logging, and fire suppression. Many of these human influences are considered press-type disturbance that continue to affect the condition and trend for fisheries resources long after the initial disturbance. Press disturbance differs from pulse disturbance in several aspects but generally press disturbance is persistent in ecosystems and impairs the ability for ecosystems to recover to pre-disturbance conditions (Reeves *et al.* 1995). Within the cumulative effects area, the recovery process from pulse disturbance has been hindered by the presence of various press disturbances. The following discussion relates these findings to the existing condition of fish habitat.

In general, watersheds within Northern Idaho can be described by one of four disturbance regimes: Unburned Watersheds Without Management Activities, Unburned Watersheds With Management Activities, Burned Watersheds Without Management Activities, and Burned Watersheds With Management Activities. A description of those disturbance regimes and the watersheds that can be described by that regime can be found in the Douglas-fir Beetle EIS (IPNF 1999). The Eagle Creek watershed, though there has been a small amount of fire disturbance, would be within the Unburned Watershed With Management Activities category. The general conditions are described in the following paragraph.

Watersheds not burned since the early 1900's, have experienced more recent disturbances associated with land management. Various intensities of road activity (*e.g.* construction, reconstruction, and maintenance), timber harvest, mining, and/or recreational facilities have influenced the rate of fish habitat recovery from historical disturbances in several streams. The existing transportation system in the cumulative effects area is an extension of historic road locations which paralleled stream courses from the valley bottoms to the mountain ridges in many cases. Riparian roads in the cumulative effects area have high levels of erosion during flood events, accelerate stream sedimentation rates, reduce channel stability, inhibit flood plain functions, reduce large woody debris recruitment potential, reduce stream shade, and otherwise impair the development and maintenance of quality fish habitat. Existing fish habitat conditions are generally below desired levels and the trend is generally not favorable in all these subwatersheds within this category.

## General Effects of Past Land Management Activities

Newer roads and some historic roads within the planning area have been constructed in more stable locations higher on the hillslopes and are of less concern for fisheries resources (please refer to the "Watershed" discussions). However, roads on hillslope locations can contribute to impaired fish habitat conditions. These roads can elevate stream sedimentation by increasing surface erosion potential and mass erosion potential. Fill failures from sections of riparian roads can be a major contributer to stream sedimentation and considerably alter the condition and trend for fish habitat.

Recent (past five years) timber harvest units, mining, and recreational facilities have generally had a less dramatic effect on fisheries resources than historical fires, historical salvage operations, and the existing transportation system (Furniss et al. 1991). However, recent timber harvests and associated roads have contributed to cumulative effects that are affecting recovery of fish habitat conditions in these streams.

The quality of fish habitat conditions in the cumulative effects area have generally been compromised but are adequate to support viable populations of some cold-water biota, especially resident fishes. Diverse conditions of the habitat components (stream temperatures, aquatic habitat diversity, cover complexity, and channel stability) that are primarily responsible for regulating populations of native salmonids in the cumulative effects area have enabled these populations to persist albeit at suppressed levels. Analysis of existing conditions indicates that many streams in the cumulative effects area continue to recover from the residual effects from historic pulse-type (fires, volcanos) disturbance acting in isolation or in combination with effects from on-going press-type (timber harvest, road building) disturbances (Chamberlin et al 1991).

One possible effect of land management activities on Management Indicator fish species that is not addressed in this section is changes in peak flow. Inasmuch as large-scale fires in Northern Idaho resulted in the historic condition of this basin often having more openings than the current condition (IPNF Monitoring Plan 1998) it is unlikely any changes in peak flows resulting from management activities would have a direct, indirect, or cumulative effect outside the conditions in which these fish evolved. In addition, Jones and Grant (1996) state the natural range of variability of peak flow varies by an order of magnitude whereas the increase associated with human activities are no more than 50%. This once again suggests that fish have evolved to live through variable flows. The conditions fish have not evolved with, however, is aquatic habitat that has been greatly simplified as the result of habitat modification; these are covered in environmental consequences.

Because most of the analysis area is in a watershed that have been negatively affected by human management, the goal for future management is to restore processes that form stream habitat. The easiest way to achieve this goal is to reduce the effects of roads while maintaining or improving riparian habitat conditions. While the minimum requirement for this project is to maintain fish habitat (USDA Forest Service, Inland Native Fish Strategy, 1995) the fisheries resource would be served by improving stream habitat conditions.

# Environmental Consequences

## Direct, Indirect, and Cumulative Effects Common to All Alternatives

**Riparian Harvest:** Loss of riparian habitat does not benefit the Management Indicator Species. This loss of riparian vegetation is the direct result of road construction across or within Riparian Habitat Conservation Areas (RHCA's) or from harvest units within RHCA's. No road construction or timber harvest units would occur within RHCA's as a result of the action alternatives. There is not expected to be any loss of riparian habitat as a result of ongoing and foreseeable actions, although there may be the possibility of some minor loss with one mining project. All action alternatives would remove no additional riparian vegetation as there are no new stream crossings or riparian harvest. No change in stream temperature within fisheries reaches would be realized in any action alternative.

In addition to removing shade, the removal of riparian habitat could reduce the amount of large woody debris that is eventually incorporated into the stream. The direct effect of this is less wood in the channel. There would be no direct effects in any action alternative from loss of wood debris recruitment. The indirect effect of this loss could be a slight reduction in pool habitat, increased channel gradient and stream velocity. No indirect effects would occur under any of the action alternatives. The cumulative effect of this would be limited to reducing fish numbers in small downstream reaches proximate to the removal of riparian habitat. Since no riparian harvest or riparian road construction would occur under the Little Ucelly Heli Bug project, none of the action alternatives would result in any cumulative effect to Management Indicator Species from loss of riparian habitat within the Eagle Creek drainage.

**Sediment Delivery Risk**: The short term effects are related to the number of new culverts crossing streams and the length of the new roads. There would be no new stream crossings under any action alternative. There would be no change in sediment risk in the watershed as a result of any action alternative. As a result of ongoing and foreseeable activities, there would be a small risk reduction in sediment delivery. This is associated with the 2-3 stream channel crossings scheduled to be restored under the Upper Cottonwood KV plan. There would be no additional cumulative effect to the Management Indicator Species within any of the action alternatives since there is no stream channel crossing construction or removal scheduled. With the foreseeable removal of stream channel crossings under ongoing and foreseeable actions, there would be a short-term increase in sediment in the watershed, with a long term reduction in sediment delivery risk.

**Increased Fish Passage:** Alternatives that remove barriers to fish passage would be a benefit to the Management Indicator species. The removal of barriers through culvert removals and upgrades allows the fish to utilize more habitat than is present under the existing conditions and may lead to more genetic diversity by reconnecting isolated stocks of fish. There are no longer any fish migration barriers in the Eagle Creek drainage. Tributary Creek is virtually unusable by fish as a result of past mining activities but there are no physical barriers restricting fish passage. As a result of ongoing and foreseeable activities, there would be no increase or decrease in fish passage. The Little Ucelly Heli Bug project would have no additional cumulative negative or positive effects to the Management Indicator Species within this watershed in terms of increased fish passage.

**Reduced Length of Encroaching Roads:** Alternatives that reduce the length of encroaching roads would have a short-term increase in sediment but would result in the long-term benefit to Management Indicator Species. There would be one-quarter mile of riparian road removed under ongoing and foreseeable actions not associated with this project. About half of this riparian road is actually encroaching on the stream channel. Alternatives 2 and 3 would not remove any additional encroaching roads, and would therefore be the same as Alternative 1 in that respect. In the short term, there would be an increase in fine sediment and reduction in cover where the road prism is currently in contact with the stream. Reduction of this encroachment in the long term, would allow the stream courses to settle into a regime where the stream course would be able to interact with the flood plain. Large wood recruitment would improve over time as this area

regenerates to forest and provides fallen trees into the stream and riparian areas. Habitat complexity would increase and provide more pool and hiding/resting habitat for fish. The short-term increase in sediment in combination with the long-term benefit associated with the removal of encroaching roads would still result in a positive benefit to the Management Indicator Species within Eagle Creek over the long term. The obliteration of the riparian East Fork of Eagle Creek road several years ago removed a significant portion of the encroaching roads in the Eagle Creek drainage. The removal of the much of the riparian road in Cottonwood Creek and the riparian road in Nocelly Creek has also occurred. These restoration activities will produce a positive benefit to the cumulative effects within the watershed.

## Cumulative Effects on Westslope Cutthroat Trout and Bull Trout Individuals and Populations

### *Alternative 1*

Historically, the Eagle Creek watershed had abundant populations of cutthroat trout. It is likely that populations of bull trout occurred as well since bull trout tend to prefer the coldest reaches and Eagle Creek is known to be a cold water drainage. The population trend of cutthroat trout has been on the decline in this watershed. Bull trout is virtually non-existent.

The effect of the no action alternative would result in slightly improved changes in the current condition or trend in the Management Indicator Species due to culvert removal, reduction in encroaching roads, and stream channel restoration work scheduled under Upper Cottonwood and Hairless Ridge. Other reasonably foreseeable activities would have minimal effect on fish habitat in the Eagle Creek drainage.

### *Alternatives 2 and 3*

The proposed vegetative treatment areas are located generally high on the hillsides. Most of the timber being removed is dead. No harvest instream buffers would be retained where riparian zones are present. Under alternative 2, half of the timber would be helicopter yarded and the remainder would be accessed from existing roads. Under alternative 3, 1.2 miles of road would be reconstructed and 0.2 miles of ridgetop temporary road would be built so that all timber could be accessed using conventional yarding systems. These roads are located above any stream channel crossings so there would be no transport mechanisms to carry sediment to streams. Alternative 2 would be lighter on the land, but under either alternative there would be no measurable change in population conditions at the scale of a stream segment. Because the actions have minimal effects at the scale of a stream reach, this project would have no incremental effect at the scale of the watershed.

Although there would be no cumulative effects from this project at the watershed scale, the overall effects of this project in combination with the past, present and reasonably foreseeable actions would be to maintain the rate at which the Management Indicator Species recover within the analysis area.

### *Cumulative Effects of Reasonably Foreseeable and Ongoing Activities*

Some activities, in addition to the activities described in the EA are common to all alternatives and are described under "Reasonably Foreseeable Activities" (Chapter II) . All future decisions associated with those projects identified as Reasonably Foreseeable have or will need to complete consultation with the U.S. Fish and Wildlife Service prior to the decision. Each of these activities has the potential to alter various aspects of watershed conditions. Protective measures were recommended and incorporated into the designs for most of these projects allowing watershed resources to be maintained. Effects to fisheries resources could be expected from some of these activities, and any action alternative under this analysis is considered to have additive effects when combined with the No-Action Alternative.

Under the Hairless Ridge project there will be 2 miles of road decompaction and the placement of stepdowns and woody debris in the West Fork of Eagle Creek. Under the Upper Cottonwood project there would be the removal of ¼ mile of riparian road and the removal of 2 or 3 stream channel crossings. These above mentioned activities will have a short term sediment increase and some loss of vegetative cover associated with removal of riparian encroaching roads, however there will be a long term positive net benefit to fish habitat within the Eagle Creek drainage. This net benefit of improved pools ratios and improved rearing habitat is expected to increase fish populations within the West Fork drainage and downstream from the drainage.

The timber harvest associated with the Small Sales EIS is generally located high on the hillsides and away from riparian areas. A portion of the volume is to be helicopter logged and no new road construction would occur. Most of the timber being harvested under this treatment is dead. The activities proposed under the Small Sales EIS project within the Eagle Creek area will not have a negative effect on fish habitat. The preferred fuelwood gathering planned for some of the roads in this area is not expected to have any effect on fish habitat as harvest is an individual tree selection of dead trees along roads that are up out of riparian areas. The firewood permit also prohibits the cutting to trees within RHCA's. The Stutzke mining project has not been approved at this time. Mitigation measures will be incorporated into the development of this project to minimize impacts to the fisheries resource. The CERCLA repository project is also in the development stages. Mitigation measures will also be incorporated into this project to minimize impact to fish. The removal of old mine tallings, as a result of this project, will improve fish habitat conditions in the East Fork of Eagle Creek by removing a source of heavy metal contamination. The subdivision and development of the private ownership in the lower reach of the West Fork could produce negative effects on fish habitat in that area with increased development in the floodplain and loss of riparian vegetation. Recreational dredging on private ownership near the mouth of Eagle Creek would also be seem as having negative impact to the fisheries resource.

*Cumulative Effects of Opportunities*

The obliteration of ¾ mile of road and restoration of one stream channel site, if implemented, could result in a short term increase in sediment, however in the long term would benefit the Management Indicator Species. The ecoburning of 3 acre where much of the canopy has already been lost to root disease would not create any negative effects on the fisheries resource due to its position on the slope and lack of riparian zones in the area. Treatment of noxious weeds would have no effect on the Management Indicator Species as treatments would follow standards that minimize risk to riparian vegetation and aquatic species.

## Determination of Effects to Management Indicator Species

Table III-9 portrays effects of the ongoing and proposed activities (including the reasonably foreseeable activities, described in Chapter II), and are designed to show the trend that would be attained with each of the alternatives, by watershed analysis area. These calls integrate the preceding evaluations of habitat components and the foreseeable actions described above. The "X" indicates the composite rating of the cumulative effects of the all actions in an alternative on the Management Indicator Species and summarized by the cumulative watershed effects areas.

***Definitions***

The impact to Management Indicator Species is described using the following definitions:

**No change in population conditions** means that there would likely be no net positive or negative effect to the population within the cumulative watershed effects areas. No change in riparian or stream conditions.

**Likely to result in a long-term reduction in risk of past management actions to individuals** indicates the action taken within the watershed is limited in nature but would result in a net benefits to individuals when compared to the existing condition. Actions that result in the reduction of risk to individuals include isolated culvert upgrades and small scale reduction of encroaching roads with little increased risk associated with road building or riparian harvest. A change in stream and riparian conditions so that Riparian Management Objective are trended towards at the segment or reach scale.

**Likely to result in a long term reduction in risk of past management actions to population** indicates the actions is broad enough in scope to effect individuals throughout the basin thereby improving the condition of the population within the cumulative watershed effects area when compared to the existing conditions. Actions that result in the reduction of risk to populations include widespread culvert upgrades, large scale reduction of encroaching roads, and/or increased fish passage without increased risk associated with road building or riparian harvest. A significant change in stream and riparian conditions so that Riparian Management Objective are trended towards at the subwatershed scale.

**Likely to result in a long-term risk in individuals** indicates the action taken within the watershed is limited in nature but would result in a net harm to individuals when compared to the existing condition. Actions that result in the increased of risk to individual include road building or harvesting riparian areas without a widespread effort to upgrade culverts and reduction of encroaching roads. A change in stream and riparian conditions so that Riparian Management Objective are trended away from at the segment or reach scale.

**Likely to result in a long-term decline in populations** indicates the action taken within the watershed is widespread and would result in a net harm to individuals when compared to the existing condition. Actions that result in the increased of risk to populations include widespread road building without a widespread effort to upgrade culverts and the reduction of encroaching roads. A change in stream and riparian conditions so that Riparian Management Objective are trended away from at the subwatershed scale.

## Table III-9. Effects to Management Indicator Fish Species in the Eagle Creek Watershed Under All Alternatives.

| | |
|---|---|
| Likely to result in a long-term decline in populations | |
| Likely to result in a long-term risk to individuals | |
| No change in population conditions | X |
| Likely to result in a long-term reduction in risk of past management actions to individuals | |
| Likely to result in a long-term reduction in risk of past management actions to populations | |
| No westslope cutthroat trout recently found within basin | |
| No bull trout recently found within basin | X |
| Direct and indirect effects (positive components) | None |
| Direct and indirect effects (negative components) | None |

## Consistency with the Forest Plan and Other Applicable Regulatory Direction

**Fish Standard 1**: Activities on National Forest System lands will be planned and executed to maintain existing water uses. To maintain is defined as "limiting the effects from National Forest management activities to maintain at least 80 percent of fry emergence success in identified fishery streams."

This standard is no longer considered applicable. Since completion of the Forest Plan, the focus of fish habitat analysis has shifted away from fine sediments as a predictor of habitat quality and fish production. A profession consensus has been reached that fine sediment (particle size smaller than .6 millimeter) detrimental to fish egg survival (Chapman and McLeod 1987) was not the limiting factor for fish production in this system. While potential limiting factors for aquatic ecosystems may be numerous (Everest and Sedell 1984; Orth 1987), field analysis suggests that channel disequilibrium and a lack of large woody debris presently plays the most important role in population regulation by influencing over-wintering survival (Sedell et al 1988; McFadden 1979; Bjornn 1971). This shift has been supported by a cross-section of internal and external groups, including the Idaho Department of Fish and Game (personal communication with Ned Horner), Idaho Department of Lands, and Idaho Department of Environmental Quality.

The IPNF Forest Plan provides six management goals that apply to streams of this analysis area, (Page II-1, Items #8, 9, 11, 13, 18, 19). Among these goals are to "manage habitat to maintain populations of identified sensitive species of animals and plants" and to manage fisheries habitat to provide a carrying capacity that will allow an increase in the Forest's trout population". The Plan states that the objective in forest fisheries streams is "to maintain 80 percent of fry emergence success" and that sedimentation arising from land management activities will be managed to meet this objective (IPNF Forest Plan, II-7). Appendix I further details: "In the event that cumulative effects of the proposed and past activities on stream sedimentation are projected to result in greater than a 20 percent reduction in fry emergence, a more detailed fishery/watershed analysis will be undertaken….before the environmental analysis is approved…". The 1989 Forest Plan Evaluation and Monitoring Report documents the change away from use of the fry emergence standard (Item G-1, pages C-1 and C-2). It was determined that it was not a good monitoring tool to report stream health. Item G-1 was combined with an expanded Item G-3, which includes a more comprehensive array of fisheries and hydrology parameters.

**Fish Standard 2**: Streams providing spawning and rearing habitat, which are considered critical to the maintenance of river and lake populations of special concern, will be managed at a standard higher than the 80 percent standard. Please refer to the discussion under Fish Standard 1, above.

**Fish Standard 3**: Streams listed under this standard of the Forest Plan will be managed as low access fishing opportunities to maintain a diversity of fishing experiences for the public and to protect sensitive fish populations. Special road management provisions will be used to accomplish this objective. This standard does not apply under this project, since none of these streams are within the project area. See Forest Plan page II-30.

**Fish Standard 4**: Provide fish passage to suitable habitat areas by designing road crossings of streams to allow fish passage or by removing instream migration barriers. Alternative 2 does not build any new roads. Roads reconstructed or build under alternative 3 are high on the slope and will not need any drainage structures. No migration barriers are known to exist on the proposed haul routes within National Forest jurisdiction, therefore there are no known opportunities with this project.

**Fish Standard 5**: Utilize data from stream, river, and lake inventories to prepare fishery prescriptions that coordinate fishery resource needs with other resource activities. Pursue fish habitat improvement projects to improve habitat carrying capacities on selected streams.

Data and inventories have been and will continue to be collected on selected streams with other projects. Fish habitat improvement projects have been implemented and will continue to be a focus item across the Coeur d'Alene River Basin. Ongoing and foreseeable activities in the Eagle Creek drainage include such projects. The Little Ucelly Heli Bug project is not one of those proposals.

**Fish Standard 6**: Coordinate management activities with water resource concerns as described in Management Area 16 (riparian corridors), Appendix I, and Appendix O.

No new management activities would occur under Alternative 1, therefore this standard would not apply. Design of the action alternative were fully coordinated with the specifications found in the Forest Plan (Appendices I and O), and standards and goals stated for Management Area 16. Class I and II streams would receive protection beyond the requirements of the Forest Practices Act under either action alternative. The action alternatives were not designed to move all streams toward meeting Riparian Management Objectives. The project was designed to avoid entry into riparian corridors.

**Inland Native Fish Strategy:** All action alternatives would be consistent with the Forest Plan as amended by the Inland Native Fish Strategy. Specified riparian management goals and objectives have been developed, and Riparian Habitat Conservation Areas are defined and delineated. Riparian management and Riparian Management Objectives (RMO's) are addressed using site-specific analysis and supportive data and watershed analyses. Specific features (standards and guidelines) have been incorporated into the alternatives as described in Chapter II (Features Designed to Protect Aquatic Resources).

No new projects would be implemented under Alternative 1, therefore application of the Inland Native Fish Strategy standards and guidelines would not be required.

Under any action alternative there is proposed stand treatment which would be initiated by the harvesting of the timber resource. Standards and guidelines from Inland Native Fish Strategy were used specifically to protect water and aquatic biota within the project area. Standard widths for defining interim Riparian Habitat Conservation Areas were utilized, without site-specific modifications. The road management standards and guidelines were applied only to roads used or affected by the proposed project. The Road Management Objectives were applied only within the project area boundary, and only on those roads used for the harvesting or hauling of timber.

**National Forest Management Act**: The National Forest Management Act requires the Forest Service to maintain the viability and habitat for native and desirable non-native species. The environmental consequences discussion in this "Fisheries" section of Chapter III discussed each alternative and the effects of the activities on viability of fish populations within the project area. The effects of the alternatives would be no change in habitat or populations. With the ongoing and foreseeable activities, the current conditions for species viability would be maintained or enhanced. This would occur by having no changes in stream temperature, dissolved oxygen, aquatic habitat diversity, cover complexity, and channel stability, with possible increases in habitat diversity, cover complexity, and channel stability where long-term reductions in risk would occur.

**Endangered Species Act, Section 7**: Within Section 7, federal agencies are required to carry out programs to conserve endangered and threatened species. Consultation is required to ensure that any action authorized, funded or carried out by a Federal agency is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. The effects of the alternatives would be no change in habitat or populations. With ongoing and foreseeable activities, this is likely to result in a long term reduction in risk of past management actions to populations and habitat. Documentation of these effects to Threatened and Endangered fish species is provided in the effects analysis and tables in the "Fisheries" section

of Chapter III. These tables display the determination of effects. A biological assessment was prepared for all endangered and threathened species (Project Files, "Biological Assessment and Evaluations").

**Recreational Fishing (Executive Order 12962, 1995):** Information on the effects to fish species are discussed in the effects analysis and tables in the "Fisheries" section of Chapter III. The tables display the potential effects. The analysis discusses both habitat and populations. As populations and habitat are affected, either negatively or positively, the recreational fishing should respond similarly.

# WILDLIFE

## Regulatory Framework

The regulatory framework providing direction for the protection and management of wildlife habitat comes from the following principle sources:

- *Endangered Species Act of 1973 as amended (ESA),*
- *National Forest Management Act of 1976 (NFMA), and*
- *Forest Plan for the Idaho Panhandle National Forests*

Section 7 of the Endangered Species Act directs Federal agencies to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any Threatened or Endangered species or result in the destruction or adverse modification of their critical habitat.

On January 10, 2001, President Clinton signed an Executive Order describing the Responsibility of Federal Agencies to Protect Migratory Birds, directing executive departments and agencies to take certain actions to further implement the Migratory Bird Treat Act (Project Files, Wildlife). The analysis of effects to wildlife included an evaluation of the effects of proposed activities on neotropical or migratory birds (Appendix A, "Issues Not Addressed in Detail"). As more information and direction related to this Executive Order becomes available, the analysis and documentation related to the Burnt Cabin Heli Bug project will be reviewed to determine whether a correction, supplement, or revision to the Environmental Assessment is necessary, in compliance with Forest Service Handbook 1909.15 (Chapter 18).

NFMA provides for balanced consideration of all resources. It requires the Forest Service to plan for diversity of plant and animal communities. Under its regulations the Forest Service is to maintain viable populations of existing and desired species, and to maintain and improve habitat of Management Indicator Species.

The Forest Plan, in compliance with NFMA, establishes Forest-wide management direction, goals, objectives, standards and guidelines for the management and protection of wildlife habitat and species, including old-growth habitat, Management Indicator Species, Sensitive species, and Threatened and Endangered species.

## Methodology

### Species Relevancy Screen

Some elements of wildlife habitat require a detailed analysis and discussion to determine potential effects on a particular species. Other elements may not be impacted; be impacted at a level which does not influence use, occurrence or the decision to be made; or can be adequately addressed through design of the project. These elements do not necessarily require in-depth analysis.
The level of analysis is dependent on a number of variables, including but not limited to the existing condition, the cause and effect relationship, the magnitude or intensity of effects, the contrast in effects between

alternatives, the risks to resources, and the information necessary for an informed decision. The analysis is commensurate with the importance of the impact (CEQ 1502.15), the risk associated with the project, the species involved, and the level of knowledge already in hand (USDA Forest Service, 1992).

Threatened, Endangered and Sensitive species (including Proposed Sensitive species) and other Management Indicator Species that are known to occur on the IPNF were screened for their relevancy to the Little Ucelly Heli Bug project area by reviewing sighting records, planning documents and other sources, such as scientific literature. Relevancy was determined if there is evidence of species or habitat present within the affected area, and whether any such species or habitat could potentially be affected by the proposed actions. Species relevancy for this project is specific to the Coeur d'Alene drainage and the conditions/situation which exists in the project area.

Some habitat and species may occur within the Coeur d'Alene River drainage but may not be applicable to this project area. A course filter screen was applied at the Coeur d'Alene River drainage level and then a finer filter screen was used to assess species relevancy at the project area level.

No further discussion or analysis is necessary for those species or suitable habitat that are not found within the project area. Additional rationale is provided in Appendix A (Public Involvement and Alternative Development) for those species dismissed from further discussion.

## Methodology Used to Determine Reference and Existing Conditions

This section includes a brief discussion of the species habitat preferences and requirements based on scientific literature, information from the Geographic Assessment and site-specific information for the analysis area. The indicators used to display potential effects on the species are developed based on this information.

An important concept in the existing condition descriptions and analysis is the difference between capable and suitable habitat. The following definitions are helpful in distinguishing between these two terms and the concepts upon which they are based.

**Capable habitat** refers to the inherent potential of a site to produce essential habitat requirements of a species. The vegetation on the site may not be currently suitable for a given species because of variable stand attributes, such as inappropriate seral stage, cover type, or stand density.

**Suitable habitat** is that which currently has both the fixed and variable stand attributes for a given species' habitat requirements. Variable attributes change over time and may include seral stage, cover type, stand density, tree size, stand age, or stand condition.

## Methodology Used in the Effects Analysis

The analysis considered direct, indirect, and cumulative effects. Refer to Chapter II - for a list of foreseeable and ongoing projects. It is the intent of this analysis that the information base reflect changes in habitat conditions (such as stand structure), resulting from past, present and reasonably foreseeable actions. Therefore, the analyses of species are a cumulative representation of these actions.

USDA Forest Service policy (Forest Service Manual 2670) requires a documented review or Biological Assessment of Forest Service programs or activities in sufficient detail to determine how an action may affect Threatened, Endangered, Proposed, or Sensitive species. Consultation with U.S. Fish & Wildlife Service is mandatory if the Biological Assessment concludes that a proposed action may have an effect on federally-listed species or habitat.

The documentation of effects and rationale for conclusions for Sensitive species are consolidated into the main text of the EA and project file. The Sensitive Species and MIS Summary of Conclusion of Effects can be found at the end of the Wildlife section in this chapter.

## *Indicators for Selected Species*

Based on habitat relationships, appropriate indicators of habitat with a potential to be impacted by the proposed action will be measured. Those indicators are displayed in the following table. Queries of the timber stand data base (TSMRS) were developed to identify capable and suitable habitat within each wildlife analysis area. The changes in habitat for each relevant species will be disclosed and a discussion of the effects on species will be displayed. Potential effects on relevant species will be organized and displayed.

### Table III-10. Indicators for analyzed species.

| Species | Indicator |
|---|---|
| **Sensitive** | |
| Flammulated Owls | • changes to suitable habitat |
| Black-backed woodpeckers | • changes to suitable habitat |
| Fishers | • alteration of suitable denning habitat and security |
| Northern goshawk | • alteration of suitable nesting habitat and disturbance |
| **Management Indicator** | |
| Elk | • changes to potential elk use (Elk Habitat Potential) |

## *Cumulative Effects Analysis Areas*

For each species analyzed in this chapter, the cumulative effects area initially looked at the project area scale. If there were no or minimal effects to the species within the project area boundary, then there was no need to expand to a larger cumulative effects analysis level since this project would not add to or subtract from the existing cumulative effect. If necessary, the cumulative effects boundaries were moved to a larger scale based on the species' or guilds' relative home range size in relation to its available habitat, topographic features (watershed boundaries) which relate to how species move and utilize their home range, and boundaries that represent the furthest extent of effects. Maps depicting wildlife habitat by species are in the Project Files ("Wildlife").

This analysis is tiered to the following documents, which provide the primary direction and methods used to develop the analysis for potential effects on wildlife.

- *Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin*
- *Toward an Ecosystem Approach: An Assessment of the Coeur d'Alene River Basin*
- *IPNF Forest Plan*
- *Available Conservation Assessments and Strategies for wildlife species*
- *Douglas-fir Beetle Project Final EIS*
- *Additional scientific literature as appropriate*

# Affected Environment

## Introduction

Wildlife populations and habitats do not stay constant over time. Habitat changes result in population increases or decreases, depending on the species. Wildfires, fires set by Native Americans, and insect and disease outbreaks were the primary disturbances and natural processes affecting habitats in the assessment area.

Low intensity, frequent fires maintained open understories in ponderosa pine and dryer Douglas-fir habitats. Western white pine, whitebark pine, ponderosa pine and western larch forests were more abundant than today, especially those in an old-growth condition. Historically, these trees provided important habitat for birds, bats, bears and other wildlife that use large snags and logs.

## Old and Mature Forest

Many wildlife species occurring on the Idaho Panhandle National Forests prefer or only occur in mature and old-growth forests. Mature and old forests are more likely than younger forests to provide habitat for species which prefer large trees, structural and biological diversity, and closed canopies, and/or which depend on snags or down logs for nesting, foraging or raising their young. Existing structurally immature stands could provide old-growth habitat over time if not disturbed or if managed to maintain large, old, diseased and dead structural components of the forest within the levels needed to provide suitable habitat. Mature forest structure currently makes up approximately 47% of the stand structure within the project area (refer to Figure III-1 in the Forest Vegetation section of this chapter).

Old forest structure has been reduced in amount and patch size across the Coeur d'Alene drainage. Approximately 6% of the basin is currently identified as old forest structure. Historically, there was a range of 10 to 25% old forest structure in the basin. Currently there are no stands within the vegetative analysis area that meet old forest structure (refer to Figure III-1 in the Forest Vegetation section of this chapter). However, the project area is within a portion of 3 old growth analysis units. Each of these analysis units contain over 10% of the stands being managed for old growth character.

## Dry Forest Habitats

These habitats have survived through low-intensity ground fires that occurred frequently (every 20 to 35 years). To protect human developments and future timber resources, fires have been suppressed, allowing smaller shade-tolerant trees to become established under the canopy of the dry site species. This has changed the structure of what was traditionally open-grown forest into dense, multi-canopied forests with more tree species diversity and greatly increased crown-fire hazard. Some wildlife species prefer open, dry forests with large trees. Flammulated owls, pygmy nuthatches, white-headed woodpeckers, western bluebirds and Lewis' woodpeckers are a few examples. Forests which have developed a dense understory of grand fir or other shade-tolerant conifers are no longer suitable for these birds. Some species, including goshawk and flammulated owls, prefer gentle slopes more than steeper dry sites. Approximately 26% of the project area contains what are considered dry forest types.

## Snags and Dead Down Woody Habitat

Over 40 wildlife species depend on snags (dead trees) for their forage, cover or a place to raise their young. Sensitive species which nest in snags include flammulated owls, black-backed woodpeckers and boreal owls. Black-backed woodpeckers also feed on insects in snags. Snags provide den sites for fishers and other mammals, and roosts for several species of bats and owls. Not all species of snags are used by all snag-dependent wildlife species; some tree species appear to be more important than others. Large-diameter snags provide habitat for the greatest variety of cavity users and remain standing longer than smaller snags.

Ponderosa pine and larch tend to last longer than other species. Many birds which nest in snags promote forest health by controlling forest insect pests.

The amount of snags and down woody material present has been identified as a measure of forestland integrity (Quigley et. al. 1996). Many wildlife species depend on dead trees for nesting, roosting, denning, foraging, resting, or shelter. These include primary cavity nesters (woodpeckers and nuthatches), which have the ability to excavate cavities in snags; and secondary cavity users (many species of birds and mammals), which use existing cavities for nesting, denning or shelter. Providing numbers of snags that have been shown to support viable populations is a prudent approach to managing for viable/sustainable populations of woodpeckers and other species which use snags and logs. Recent studies indicate that viable woodpecker populations occurred in areas with about four snags per acre (Bull et al. 1997). Research also recommends managing snags in every 5 to 25-acre patch (Bate, 1995; Evans and Martens, 1995).

After snags fall and become logs on the forest floor, they are still important to many wildlife species. They provide travel corridors and cover for rodents and other mammals, reptiles and amphibians. Hollow logs are used as den sites by many species. Lynx, boreal toad, marten, turkey and snowshoe hare are a few of the species which favor habitats with an abundance of down logs.

In addition to snags, living trees with decay, hollow trees and broomed trees are important to many wildlife species and are an integral part of the natural processes and functions of forested ecosystems.
Timber harvesting and firewood gathering are common activities in the forest. Forest management typically selectively harvests the dying, diseased and dead trees for timber harvest, so most stands have fewer snags and dying or diseased trees after a timber sale. Snags are often felled during forest management activities because they pose a safety threat to forest workers.

Salvage logging after fires also removes snags from the landscape. Salvage logging targets recently-killed trees which have not had sufficient time to develop the decayed condition which is preferred by many snag-dependent species. Snags and down logs are used by many people who cut firewood, and corridors along open roads often have few snags. Once large snags are removed, it may be 100 years before a regenerated stand can grow new trees and produce snags large enough to meet the needs of most snag-dependent wildlife species.

Wildlife in the IPNF lived with periodic outbreaks of a variety of insects and diseases. The outbreak of Douglas-fir beetle and tree mortality provides the opportunity to recognize and retain habitat components that support a host of wildlife species. It is intuitive that species associated with old growth and snags are probably less abundant than historically. With that in mind, the beetle outbreak can be viewed as an important change that could benefit many forest wildlife species and at the same time adversely affect other habitat components for some species (e.g. percent canopy cover). Please refer to PNW-GTR-391, Bull, 1997 for more background and general management recommendations regarding snag-dependent species.

## Security

Prior to European settlement, local inhabitants lived and traveled mainly in the major river bottomlands. Human developments and disturbance outside these bottomlands were minimal. Historically, all of the national forest was considered security for wildlife dependent upon it and animals moved freely across the landscape. Recreation, mining, and timber management have all led to an increase in the number of roads which provide access for humans and impact security for wildlife.

## Populations

Species which are associated with mature/old forest structure, snags, or that are sensitive to human disturbance, such as many Threatened, Endangered, and Sensitive species, were likely more abundant historically across the Idaho Panhandle and the Coeur d'Alene River drainage. The gray wolf, bald eagle and

Canada lynx are Threatened and Endangered wildlife species which may occur within the Coeur d'Alene River drainage. These species, except the bald eagle which is recovering, have decreased in population and distribution and occur in only portions of their former ranges on the IPNF; occurrence in the Coeur d'Alene River drainage is limited.

Human developments, habitat loss, fragmentation and disturbance have affected Threatened, Endangered and Sensitive species; hunted, trapped and wide-ranging species; and species associated with habitats outside the historical range of variability. As roads were built for mining and logging, previously secure habitats were opened to motorized traffic and other disturbances, leading to displacement of wildlife (from otherwise suitable habitat) and increased mortalities. Forest management has altered the amount and distribution of structural stages resulting in changes in the amount and distribution of suitable habitat and the populations of species which require or occur in these habitats.

Some populations are artificially controlled by humans. Idaho Fish and Game has transplanted elk, woodland caribou and mountain goats to augment low populations and increase distribution.
Unlike carnivores, big-game species such as deer, elk and moose are more abundant now than historically, due in large part to continued creation of early succession foraging habitats through timber harvests, and Fish and Game's population management objectives.

## Black-backed Woodpecker

### Introduction

The black-backed woodpecker is found within insect infested forests of North America, Cascade Mountains, and northern portions of the Sierra Nevada and Rocky Mountains (Washington Department of Wildlife 1991). The black-backed woodpecker has been sighted during their breeding season on the Coeur d'Alenes.

Black-backed woodpeckers have been found in Washington in scattered locations throughout the state. Heaviest concentrations seem to be east of the Cascade crest. Their distribution in Idaho is unknown. They forage for insects in the bark of live trees such as lodgepole pine and larch; however, they may prefer to forage on burned snags. They forage in various levels of the canopy, and have been seen foraging from ground level to 60 feet high or more (Jewett, et al. 1953). It is possible that the species inhabits the project area. Root disease has probably resulted in endemic levels of insect infestations that provide foraging opportunities for the black-backed woodpecker. Larch stands, which are a preferred breeding area, are lacking in the project area.

### Reference Condition

No accurate estimates or records exist for historic populations within the project area. It would be reasonable to infer the numbers of woodpeckers were greater than what occurs currently. Fire likely played a signficant role in providing habitat. Fires not only would have provided a food source, since it is believed black-backs prefer burned snags, but would also would have provided conditions for the establishment of seral species cover types that are preferred by the black-backed woodpecker.

### Existing Condition

Exclusion of fire has resulted in a loss of conditions that were preferred by black-backed woodpeckers, not only in food sources but in preferred cover types as well. Changes in forest structure as a result of past logging practices have also reduced habitat components within the project area

**Environmental Consequences**

*Effects Common to Both Action Alternatives*

The project includes design criteria intended to maintain a minimum number of snags distributed across the harvest units. These guidelines would retain snags in addition to the tremendous number of snags that are being created by the Douglas-fir bark beetle across the Coeur d'Alene Basin, north Idaho and northeastern Washington. Snag recruitment outside of the beetle activity area, such as from root disease and snow/ice damage, is primarily in the smaller size classes of snags, which are used more by black-backed woodpeckers than some other snag-dependent species dependent on larger snags (see pileated woodpecker discussion in Appendix A – Issues Not Discussed in Detail). The project would contain design criteria and mitigation measures to adequately protect and maintain appropriate habitat for black-backed woodpeckers.

Aerial detection flights in 1998 showed 2730 acres on the Coeur d'Alene River District affected by beetle mortality. Aerial detection flights in 1999 showed 63,600 acres affected. Flights in 2000 showed 62,800 acres affected by beetle mortality. Some of these acres likely overlap as they are based on locations where red trees are present. The Douglas-fir Beetle EIS has implemented salvage operations on approximately 5000 acres. The Small Sales EIS proposes to treat about 1100 acres. The Little Ucelly Heli Bug project proposes to treat an additional 52 beetle-affected acres. This salvage effort is small is scope compared to the amount of snags that are being created. This also does not take into account that some of these beetle-affected acres proposed for treatment under this proposal, may not have been included in that aerial detection flight, (ie. they are the result of year 2000 mortality after the aerial flight was made). Maintenance of snags within the harvest units, in addition to the many untreated beetle-affected acres within and adjacent to the project area, would avoid long-term impacts to the black-backed woodpecker. There may be impacts to individual black-backed woodpeckers because harvest activities will reduce some of the habitat available for potential population increases that may occur due to the Douglas-fir beetle infestation. Under all alternatives, there would be an increase in habitat compared to if the beetle outbreak had never occured. Therefore, the action alternatives may impact individuals but will not trend the species towards listing.

*Direct and Indirect Effects to Black-backed Woodpeckers*

Alternative 1: The effects of the Douglas-fir bark beetle outbreak is an increase in feeding and nesting opportunities for the black-backed woodpecker within the project area. This created habitat is not optimal in terms of cover types and feeding sources but would be expected to be utilized. Concentrations of dead trees would likely also be preferred as it would increase the feeding opportunities without having to fly as far from nesting areas. Older regeneration harvests in the project area did not provide for residual snag habitats or replacement snag trees so retention of the habitat created by the beetle mortality would be preferred for increasing black-back populations in the area.

Alternative 2 and 3: Under the action alternatives there would be a reduction in snag habitat with the salvage and regeneration harvest of 52 of the 200 beetle-affected acres in the project area. Treatments would generally occur where the snag densities are the highest. Treatment areas would retain 4 of the largest snags on the sites to maintain part of the snag habitat component created by the bark-beetles within the treatment areas. The proposed regeneration units are designed to leave most of the larger green component on site. It is believed that the group shelterwood unit would still provide suitable habitat since this species does use open areas and would still have groups of green trees available for hiding cover from some predators. The site preparation burning of the regeneration units may provide some fire-scorched trees after treatment which may be a beneficial since this species seems to key into burned timber. Over the long-term, the regeneration of these units to pines and larch habitats would provide more habitat that is preferred for feeding and nesting than is currently available in the project area.

*Cumulative Effects to Black-backed Woodpeckers*

Perhaps the greatest effect on the reduction of black-backed woodpecker habitat has been the exclusion of fire from the ecosystem with aggressive fire suppression. This has resulted in less preferred feeding sources with patches of fire-scorched timber and with less seral species habitat which is preferred as foraging and breeding habitats. Past timber harvests in the project area have also reduced snag habitats as these regeneration units did not leave a snag component or large recruitments for future snag habitat.

The Douglas-fir beetle outbreak has increased the snag component in this area over the existing condition prior to the outbreak. The proposed treatments would reduce the current snag habitat but not more than the increase in snags provided by the beetle outbreak. Root disease is also providing a continual influx of snag habitat into the project area over time. Although expected to be used, snag habitat created by root disease and bark beetles is not thought to be preferred.

Though small in scale, regeneration activities ongoing under Prichard Peak and proposed regeneration units in the action alternatives would be expected to provide more suitable black-backed woodpecker habitat over the long term with the establishment of seral species stands preferred by the species.

The preferred fuelwood gathering projects identified under foreseeable actions would result in a reduction in snag component along roadways which could reduce some potential habitat. Timber salvage under the Small Sales EIS will also reduce snag numbers from existing conditions in areas adjacent to the project area, however there are still many beetle-affected stands in the surrounding areas, some of which are allocated old growth, that are not being considered for salvage with this or other projects (See Project Files – Wildlife). Other projects listed as ongoing and foreseeable activities in Chapter II are not expected to affect black-backed woodpeckers.

## Flammulated Owl

### Introduction

Flammulated owls are seasonal migrants that occupy home ranges in the northern latitudes of Idaho during the spring, summer and fall. They depend upon naturally-occurring or excavated cavities for nesting. Consequently, snags and other defective trees are an important component of their breeding habitat (Verner 1994).

These owls are attracted to relatively open, older forests featuring ponderosa pine and Douglas-fir that are correlated with drier habitats. Reynolds and Linkhart (1992) reported that all published North American records of nesting except one came from forests in which ponderosa pine was at least present, if not dominant. The flammulated owl's preference for ponderosa pine and/or Douglas-fir can also be linked to prey availability. Reynolds and Linkhart noted a stronger correlation between prey availability and ponderosa pine and Douglas-fir, than with other common western conifers.

### Reference Condition

Historically, the Coeur d'Alene basin provided more flammulated owl habitat, primarily on dry habitats at lower elevations (Geographic Assessment, page 37). No populations numbers exist for this species' historic condition; however, a geographic assessment of the Coeur d'Alene River basin (Geographic Assessment, page 37) determined that the historic amounts of dry site large/mature and old-growth ponderosa pine and Douglas-fir were much more numerous than currently. This is due to several reasons. Low intensity wildfires that maintained these stands in suitable conditions for flammulated owls have been essentially eliminated by aggressive fire suppression. Timber harvesting has fragmented stands into smaller patches. The lower elevation, low gradient areas outside the Forest boundary have been subjected to human development. These factors have dramatically reduced the amounts of suitable habitat for this species.

**Existing Condition**

Approximately 95% of suitable habitat has been reduced within the Lower Clark Fork Ecological Unit; the Coeur d'Alene drainage is part of this ecological unit (Wisdom, in press). Much of the habitat loss is due to urban and agricultural development on low elevation private lands outside the forest boundary. Currently, there are approximately 501 acres of capable flammulated owl habitat, of which 189 acres are identified as suitable habitat within the project area. Some capable habitat could provide habitat for the flammulated owl in the future as tree diameters and snags increase, however about a third of these acres are in the seedling/sapling stage so it will be quite some timber before they become suitable habitat. There are no documented sightings of flammulated owls within or near the project area.

**Environmental Consequences**

The following sections analyze the effects of the alternatives on flammulated owls and their habitat. Please refer also to the project files (Wildlife) for supporting information.

*Direct and Indirect Effects to Flammulated Owl*

Alternative 1: Beetle mortality has resulted in an increased number of large snags for use by flammulated owls for nesting or roosting. Large snags are considered an important, and sometimes limiting, habitat requirement. If canopies are not reduced below 40%, the increase in these large snags would increase habitat quality for the flammulated owl. According to Howie and Ritcey (1987, p. 251) flammulated owls have been observed using stands with canopy closures as low as 35%. However, current mortality of the larger tree component however could result in a loss of future large snags as trees are no longer available for increased diameter growth.

Beetle-related tree mortality in some cases may benefit stands, allowing trees to grow larger because of reduced competition. The benefit may be off-set by an increased risk of a stand-replacing fire (please refer to the Fire/Fuels analysis in this chapter). A stand-replacing fire has the potential to greatly reduce owl habitat.

Approximately 4 acres of suitable flammulated owl habitat has had canopies reduced by bark beetles to the point that they likely no longer meet suitable habitat. This figure is likely somewhat higher but site specific information is not available to confirm that. Capable habitat has likely not been affected by bark beetle mortality to the point of delaying capable habitats from becoming suitable.

Alternatives 2 and 3: A minimal canopy closure of at least 35% appears to be an important component of flammulated owl nesting habitat. Based on site-specific information, 4 acres scheduled for harvest in suitable habitat (Unit 11) has had the canopy component reduced to 20%. This canopy closure reduction, caused by the bark beetles, will likely make this area no longer suitable flammulated habitat. Three acres scheduled for harvest in suitable habitat (Unit 7a), have had a reduction to 60% canopy closure. The proposed salvage treatment would result in a 55% canopy closure and would likely still maintain this area as suitable habitat. The one acre of capable habitat that is proposed for entry is limited by canopy closure from becoming suitable habitat. It would be quite some time before trees in this area become large enough to provide adequate canopy so the salvage of dead trees from this area is not expected to set back the time before this area becomes suitable habitat.

There was no significant difference between canopy closure resulting from beetle activity and harvest. Therefore, the effects to canopy closure under all alternatives, including the No-Action Alternative, would be similar. However, the number and availability of snags is greater under Alternative 1 than under any of the action alternatives, although there is considerable beetle mortality in the large block of suitable habitat south of proposed Unit 11. The action alternatives also pose a risk of losing an undetected nest tree during

implementation, although mitigation measures would be in place in the event that a nest tree is discovered prior to harvest (as discussed in Chapter II).

Under both harvest alternatives, proposed salvage harvest in Unit 7a could alter the ability of the stand to provide suitable nesting habitat in the short term. Therefore, rather than the 4 identified for other units, 6 of the largest dead trees per acre would be maintained in Unit 7a (and Unit 8) to maintain nesting habitat. Since Unit 11 would likely no longer meet suitable flammulated habitat because of beetle-mortality, the number of dead trees maintained per acre would not be increased from 4. The action alternatives may impact individuals but would not trend the species toward listing.

*Cumulative Effects to Flammulated Owl*

Suitable habitats are forested areas that currently provide for the needs of the flammulated owl. Under all action alternatives, approximately 7 acres of harvest would occur within suitable habitat. Four of these acres are no longer suitable because of canopy reductions due to bark beetle mortality. One acre of harvest would occur within habitat that is not currently suitable but would be capable of meeting flammulated owl habitat at a future date.

Due to past harvest, rural development outside of the project area, and exclusion of fire, there has been a substantial decline in flammulated owl habitat. Cumulative effects in this area would be considered moderate to high. Approximately one-third of the suitable habitat acres have been lost to past timber harvest. Ongoing and foreseeable actions will contribute to some loss of snag habitat with preferred fuelwood gathering along Road 343. Harvest activities outside of the project area associated with the District's reasonably foreseeable Small Sales EIS will reduce current snag numbers but no harvests will occur within suitable flammulated habitat.

Implementation of Unit 7a (located in suitable nesting habitat) would not be expected to trend the species toward listing. However, if the unit were dropped from implementation, it would maintain undisturbed suitable flammulated owl nesting habitat. Although the unit is only 3 acres in size, the habitat is important due to the cumulative local loss of suitable habitat, and the significant basin-wide reduction in overall habitat.

## Fisher

### Introduction

Fisher are medium-sized mammalian carnivores. They tend to be opportunistic predators, eating anything they can catch. Their major prey tend to be small to medium-sized mammals, birds, and carrion. Fishers are found only within North America and presently occur from southern Canada south into the northwestern states, California and the Great Lake States. Fishers occur most commonly in landscapes dominated by mature to old-forest cover. Within the Pacific states and Rocky Mountains they appear to prefer late-successional coniferous forests in the summer and mid to late-successional forests in winter.

Fishers prefer habitats with high canopy closure (greater than 80 percent) and avoid areas with low canopy closure (less than 50 percent) (Powell, 1982). They also have been known to use riparian areas. In north-central Idaho, grand fir and spruce forests were preferred by fishers (Jones, 1991), in elevations from approximately 3,000 to 5,000 feet. The habitat requirements of fishers are thought to be associated with the physical structure of the forest and associated prey. This structure includes the vertical and horizontal complexity created by a diversity of tree sizes and shapes, light gaps, dead and downed wood and layers of overhead cover. Large-diameter spruce and grand-fir snags and large downed material are used for denning and foraging. Fishers tend to avoid non-forested areas. The home ranges for fishers vary with prey densities. Studies indicate that the average home range for adult males is 40 square kilometers; this is nearly three times that of females, which is 15 square kilometers.

Fishers tend to avoid human presence and generally are more common where there are fewer people and less human disturbance. Fishers are easily trapped. Where populations are low, fisher populations can be jeopardized by the trapping of coyote, fox, bobcat and American marten (Ruggiero et al., 1994). Habitat security in the form of low road density reduces the risk of this mortality because trapping areas are reduced.

**Reference Condition**

No accurate estimates or records exist for historic wildlife populations of fisher or American marten in the analysis area. Hudson Bay trapping records indicate that furbearers, including these two species, were trapped in the area, particularly in the northern portion of the Coeur d'Alenes. It would be reasonable to infer the numbers of animals were greater than what occurs currently given the number of records within the last 10 years in the Geographic Assessment area.

**Existing Condition**

Analysis of the fisher reflects changes in habitat for the marten, since their habitat needs are similar. Extensive alteration of forest structure as a result of natural and human-caused disturbances (i.e. reduction in canopy closure, snags, old growth, and down woody material) has altered the habitat value for fisher and marten. Generally, the openings created by human development and timber harvesting have reduced denning habitat value, whereas the increase in canopy cover brought about by fire suppression has expanded denning habitat quality.

Existing roads within the project area which are open or ATV accessible are moderate, contributing to vulnerability or moderately low security for fisher in this area. There are no documented sightings of fishers in the Eagle Creek area.

The capable habitat varies in structure and age class from existing suitable habitat. Some of the stands could feasibly provide habitat for the fisher in 25 to 50 years. Other capable stands may have the correct tree species composition, position on the slope, and terrain features, but are very young and it may be over 100 years before they are providing habitat for the fisher. The modeling of the existing condition of the project area, based on the TSMRS data base, shows 511 acres of fisher capable habitat with 135 of these acres currently suitable.

**Environmental Consequences**

*Direct and Indirect Effects to Fisher*

Alternative 1: Approximately 200 acres in the project area have been affected by the Douglas-fir bark beetle. Of these 200 affected acres, approximately 13 acres are in suitable fisher habitat and 1 acre is in capable habitat. Most of the beetle mortality in suitable fisher habitat is scattered and not concentrated in patches that would significantly impact habitat in potential fisher areas. Additional mortality associated with the Douglas-fir bark beetle in these areas is expected to be minor. The one acre of capable fisher habitat affected by beetles does have concentrated beetle mortality. This will open up that area, setting back the period of time before it would achieve suitable habitat.

Alternative 2: Under Alternative 2, three acres of modeled fisher suitable habitat and 1 acre of capable habitat would be within treatment areas. The three acres of suitable habitat is located within a salvage unit (Unit 8). The salvage of the beetle-killed trees would still maintain over 50 percent canopy closure on the site so the salvage operation would still maintain adequate canopy to quality as fisher habitat. Salvage would however reduce some of the future down wood component that is an important component in fisher habitat. Therefore, Unit 8 would retain 6 of the largest standing dead trees per acre (rather than 4) to ensure that a

future large down wood component is retained on the site. The one acre in capable habitat is located within a proposed regeneration unit. This area has already been reduced below 50 percent canopy levels as a result of bark beetles, so the regeneration treatment would not set back timeframes of this area from becoming suitable habitat.

There would be no road construction or reconstruction under this alternative. Two earth-barriered roads would need to be opened to access this timber. Neither of these roads are brushed in. Purchaser would be required to install gates on these roads if opened for more than a two week period. Earth barriers would be returned upon completion of purchaser's use. Sale activities would result in an increase in disturbance but it would be short term. Gating opened roads and returning roads to barriers would minimize the amount and period of disturbance in these areas. Road 3019 (accessing Units 8-11) currently has a breached gate. This gate would be repaired during sale activities and closed during periods of inactivity and after use. The activities proposed under this alternative may effect individuals but would not trend the fisher toward listing.

Alternative 3: Alternative 3 would have the same effect as Alternative 2 in terms of stand treatments. However, under Alternative 3, 1.2 miles of road reconstruction and 0.2 miles of temporary road construction would occur. The 1.2 miles of reconstruction would be re-opening a roadway that is completely brushed in. However, this road does not go through either fisher suitable or fisher capable habitat. Approximately 0.2 miles of temporary road would occur through capable fisher habitat. This capable habitat is canopied. Due to increased roading access, Alternative 3 would potentially have more impacts to fisher than would Alternative 2. However, with the planned front-end obliteration of the reconstructed road and the obliteration of the temporary road, this disturbance would be short term. The determination of effects under this alternative is that it may effect individuals but would not trend the fisher toward listing.

*Cumulative Effects to Fisher*

Approximately 150 acres of capable fisher habitat within the project area has had past regeneration harvests. Most of these acres were likely suitable habitat prior to the harvest entry. Past roading has also served to fragment fisher habitat within the area. The preferred fuelwood gathering projects identified under foreseeable actions would result in a reduction in snag component along roadways which could reduce some potential future habitat, however none of this activity would occur within currently suitable fisher habitat. Salvage proposed under the District's reasonably foreseeable Small Sales EIS in the vicinity of this project area would result in some lost of future down wood habitat but none of the treatment areas under that project would be in suitable habitat. There are numerous large areas of suitable fisher habitat to the southeast of the project area, much of which is associated with allocated old growth, that is not planned for any harvest treatments with this or other projects (Project Files – Wildlife).

Disturbance in this area under either action alternative would be short term. Portions of the project area would have additional disturbance over the next few years with preferred fuelwood gathering along Road 343 and with the CERCLA Repository along Road 3019. Depending on the selected location for the repository site, there may be disturbance from truck traffic hauling to this site for a period of years. The remainder of the projects listed as ongoing or foreseeable in Chapter II are not expected to affect fisher habitat.

## Northern Goshawk

### Introduction

Goshawks have habitat requirements associated with components and attributes of late successional forests (USDA, 1990). While associated with mature to old growth habitat, they utilize other successional stages. For example, feeding habitat can be found in pole-sized timber stands. Habitat features important to goshawk are those which influence nest site selection and food availability. Regeneration harvest would reduce nesting

(and feeding) values to zero. Reductions in canopy cover (either from stand decline or salvage treatment) would reduce the feeding value.

**Reference Condition**

Historic numbers of goshawks were likely higher than they are today. This would be due to loss of old forest structure and because many of the species they prey upon were likely more numerous due to better habitat conditions for the prey.

**Existing Condition**

The Geographic Assessment for the Coeur d'Alene River basin indicates a greater proportion of old growth was present in the Coeur d' Alene Mountains than currently occurs. Old growth is important for northern goshawks not only for prey species habitat but also for the large trees that provide the substrate for their substantial nest structures.

Another factor influencing the amount of goshawk habitat is the amount of understory vegetation that an area produces. Because northern goshawks require a combination of adequate understory to provide prey species, and adequate clearance for flight maneuverability, some stands that historically were suitable for foraging are no longer suitable because of increased density of understory.

The project area contains approximately 365 acres of modeled capable habitat of which 62 acres are currently suitable. Goshawks generally prefer moderately dense mature forest structure on gradual terrian. Suitable goshawk habitat is quite similar to what is modeled as suitable fisher habitat.

Generally, because northern goshawks require a high level of canopy closure, a reduction to below 50% canopy cover would remove stands from nesting suitability. Stands with interspersed standing live trees, would however still function as foraging habitat. Those stands in which canopy closure remained above 50% would remain suitable nesting and foraging habitat (USDA Forest Service, 1990). There have been no documented sightings of goshawks in the Eagle Creek drainage.

**Environmental Consequences**

*Direct and Indirect Effects to Goshawks*

Alternative 1: Approximately 200 acres in the project area were affected by the Douglas-fir bark beetle. Of these 200 affected acres, approximately 7 acres are in suitable habitat, none are in capable habitat. Most of the beetle mortality is scattered and not concentrated in patches that would significantly impact habitat in potential goshawk areas. Increases in snag densities may increase the prey base for goshawks.

Alternatives 2 and 3: Under either action alternative, one acre of modeled goshawk suitable habitat would be within a treatment area. Unit 8 (3 acres) is located along the edge of a stand that is being tracked as suitable habitat. The salvage of the beetle-killed trees would still maintain over 50 percent canopy closure on the site so the salvage operation would still allow the area to qualify as goshawk habitat in terms of canopy closure. Salvage would however reduce some of the standing dead and future down wood component that is an important component for the prey base of the goshawk. To mitigate for some of the effects of this salvage, it is recommended that this unit should retain 6 of the largest standing dead trees per acre (throughout the unit) to ensure a short term snag component and a future large down wood component. The roading proposed under Alternative 3, though providing some increase in disturbance, will not influence goshawk suitable or capable habitat. Therefore the effects of either alternative are very close to the same.

Mitigation measures (identified in Chapter II), in conjunction with the small scale and duration of this project, are expected to result in no effect to northern goshawk populations.

*Cumulative Effects to Goshawks*

Approximately 123 acres of capable fisher habitat within the project area has had past regeneration harvests. Most of these acres were likely suitable habitat prior to the harvest entry. Past roading has also served to fragment goshawk habitat within the area. The preferred fuelwood gathering projects identified under foreseeable actions would result in a reduction in snag component along roadways which could reduce some potential prey base habitat, however none of this activity would occur within currently suitable goshawk habitat. Salvage proposed under the District's reasonably foreseeable Small Sales EIS in the vicinity of this project area would result in some lost of prey base habitat but none of the treatment areas under that EIS would be in suitable habitat. Like the fisher, there are several large areas of suitable goshawk habitat to the southeast of the project area, much of which is associated with allocated old growth, that is not planned for any harvest treatments with this or other projects (Project Files – Wildlife).

Disturbance in this area under either alternative would be short term. Portions of the project area would have additional disturbance over the next few years with preferred fuelwood gathering along Road 343 road and with the CERCLA Repository along Road 3019. Depending on the selected location for the repository site, there may be disturbance from truck traffic hauling to this site for a period of years. The remainder of the projects listed as ongoing or foreseeable in Chapter II are not expected to affect goshawk habitat.

## Elk

### Introduction

White-tailed deer, moose and elk inhabit the analysis area. Elk are the primary big game species using the area. Since elk are the Management Indicator Species for big game on the Central and Southern portion of the IPNF (Forest Plan, Appendix L, p. 5), the analysis for big game will focus on elk. Consequently, white-tailed deer can adequately be represented by discussions on elk. The IPNF Forest Plan does not emphasize moose on the central and southern portion of the Forest.

### Methodology

Elk habitat potential was calculated using the "Guidelines for Evaluating and Managing Summer Elk Habitat in Northern Idaho," (Leege, et al. 1984). "Elk habitat potential" represents the percentage of the maximum potential habitat (100 percent) that is provided to the animal. The elk model uses habitat data to predict the ability of an area to support elk populations. The factors which are used in this model include cover-forage ratios, thermal cover, summer and winter range acres, open roads, gated roads, obliterated and barriered roads, security acres, and cumulative effects of adjacent timber sale and road building activity.

Elk Habitat Units are made up of several compartments (drainages) and encompass large areas. The project area lies within Wallace Elk Habitat Unit (EHU) 3. EHU 3 encompasses 71,449 acres and includes compartments 151, 152, 153, 154, 155, 192, 193, 194, 195, 196, 198, and 199. The Forest Plan goal for elk habitat potential in this EHU is 65 percent. The current level is at 62 percent.

### Reference Condition

Elk are now present in greater numbers than were present historically, partially due to reintroductions in the early 1900's (Idaho Fish and Game, 1997).

**Existing Condition**

Elk are a species of social concern for management because they are regularly hunted on the Forest. Management for elk involves providing for thermal and hiding cover, and secure areas greater or equal to 250 acres in size. Existing elk habitat potential is described in further detail in the "Environmental Consequences" discussion.

**Environmental Consequences**

*Direct, Indirect, and Cumulative Effects During and After Post-Sale Activities*

Alternative 1: Under Alternative 1, there may be some loss of thermal cover due to the Douglas fir beetle outbreak, and some areas where the increases in canopy openings would provide forage over time rather than cover. This would have a minor effect on elk, and would not be measurable enough to cause the elk habitat potential to change. There would be no loss of security beyond the existing condition. Cumulatively, there would be no change from the existing elk habitat potential.

Alternative 2: Under Alternative 2, there would be a loss of some hiding and thermal cover beyond what bark beetles have done but it would be very minor since most of the timber planned for harvest would be dead. There would be no new road construction or reconstruction under this alternative. There would be some loss of security during sale activities. During the sale, two earth-barriered roads (Roads 978A and 343) would be opened to allow access to harvest units and helicopter landing sites. These roads would be required to be gated, and closed at the end of daily activities, if either of these roads are opened for a period greater than 2 weeks. The gate on Road 3019 is currently breached. This gate would be repaired and closed at the end of daily activities during the project use period. Earth barriers would be replaced after purchaser's use. Barrier on Road 343 would need to be ATV passable to allow for summer ATV use under the District Travel Plan. The site preparation burning of the regeneration units (7 acres) should provide preferred foraging habitat. The elk habitat potential for EHU 3 would remain at 62 percent during sale activities, after sale activities, and post sale, taking into consideration the cumulative effects of other activities (Project Files – Wildlife).

Alternative 3: Under Alternative 3, there would be some additional loss of hiding and thermal cover, above what the bark beetles created (Alternative 1) and what would occur under Alternative 2, due to skyline corridors and right-of-way clearings. Otherwise unit treatments would remain the same as under Alternative 2. Alternative 3 would reconstruct 1.2 miles of roadway, most of which is completely brushed in. Approximately 0.2 miles of temporary road would also be constructed under this alternative. Road use would be similar as described under alternative 2 except that three earth-barriered roads would need to be opened. The same gating requirement would apply as described above. The reconstructed road would have a front-end obliteration after use to effectively close that road segment off after use. The temporary roadway would be obliterated. There would be a greater loss in security during sale activities with this alternative and the duration of disturbance, though still considered short-term, would be longer than with alternative 2. However, post-sale conditions would return to the same security levels. The elk habitat potential for EHU 3 would still remain at 62 percent, even during sale activities, under this alternative (Project Files – Wildlife). Part of the reason for the lack of change in the modeling is because the scope of this project is small within a large EHU. The cumulative effects of this project and other ongoing and reasonable foreseeable activities is minimal within the context of this large Elk Habitat Unit.

## Consistency With Forest Policy and Legal Mandates

Forest Plan standards (Forest Plan, Chapter II, pages II-26 through II-29; Project Files, "Wildlife"), in compliance with NFMA, were incorporated into all alternatives. These standards addressed elk and elk goals, threatened and endangered species, sensitive species and old growth management. Elk habitat potential analysis was consistent with the "Guidelines for Evaluating and Managing Summer Elk Habitat in Northern Idaho" as specified on page II-27 (Item 1c) of the Forest Plan.

All alternatives would be consistent with Forest Plan management direction, goals, objectives, standards and guidelines for the management and protection of wildlife and species.

All of the alternatives would comply with the Endangered Species Act of 1973 as amended (ESA) since no alternative would lead a threatened or endangered species towards extinction.

All alternatives are consistent with the January 10, 2001 Executive Order describing the Responsibilities of Federal Agencies to Protect Migratory Birds. The analysis of effects to wildlife evaluated effects of proposed activities on neotropical landbirds (migratory birds), as disclosed in Appendix A (Issues Not Discussed in Detail in this EA). As more information and direction related to this Executive Order becomes available, the analysis and documentaion related to the Little Ucelly Heli Bug project will be reviewed to determine whether a correction, supplement, or revision to the document is necessary, in compliance with Forest Service Handbook 1909.15 (Chapter 18).

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# ACRONYMS/GLOSSARY

| | |
|---|---|
| CCF | Cunit (hundred cubic feet)* |
| CFR | Code of Federal Regulations* |
| ECA | Equivalent Clearcut Acres |
| FSH | Forest Service Handbook |
| INFS | Inland Native Fish Strategy |
| KV | Knutson-Vandenberg Act of 1924 |
| MA | Management Area* |
| MBF | Thousand Board Foot |
| MMBF | Million Board Foot |
| NEPA | National Environmental Policy Act* |
| NFMA | National Forest Management Act* |

* These terms are defined in the Glossary below.

## A

Affected Environment. The natural, physical, and human-related environment that is sensitive to changes due to proposed actions.

Air Quality. Refers to standards for various classes of land as designated by the Clean Air Act, P.L. 88-206: Jan. 1978

Airshed. A geographical area that, because of topography, meteorology, and climate, shares the same air.

Allowable Cut. Amount of timber which can be harvested in any given year.

Allowable Sale Quantity (ASQ). The quantity of timber that may be sold on the Idaho Panhandle National Forests from the area of land suitable for timber management, as directed in the Forest Plan.

Alluvial. Materials transported and deposited by water.

## B

Background (Visual Distance Zone). That part of a scene, landscape, etc., which is furthest from the viewer, usually three miles to infinity from the observer.

Basal Area. Area of the cross section of a tree stem near the base, generally at breast height and inclusive of bark.

Best Management Practices (BMP). Practices determined by the State to be the most effective and practicable means of preventing or reducing the amount of water pollution generated by non-point sources, to meet water quality goals.

Big Game. Those species of large mammals normally managed as a sport-hunting resource.

Biodiversity or Diversity. The relative distribution and abundance of different plant and animal communities and species within an area.

Board Foot (BF). A unit of measurement equal to an unfinished board one foot square by one inch thick.
Broadcast Burn. See Prescribed Burning.

## C

Canopy. More or less continuous cover of branches and foliage formed collectively by the crown of adjacent trees and other woody growth.

Cavity Habitat. Snags, broken-topped live trees and down logs used by wildlife species that excavate and/or occupy cavities in these trees.

Clearcut Harvest. A regeneration method under an even-aged silvicultural system. As suitable seed trees are either non-existent or unprotectable, all trees within a defined area are removed at one time. Reserve trees may be left in the unit.

Climax Vegetation. The culminating stage in plant succession for a given site where the composition of the vegetation has reached a highly stable condition over time and perpetuates itself unless disturbed by outside forces.

Code of Federal Regulations (CFR). The listing of various regulations pertaining to management and administration of the National Forests.

Compartments. A geographic area delineated by a subwatershed drainage for management planning purposes.

Condition Class. A descriptive category of the existing tree vegetation as it relates to size, stocking, and age.

Conifer. Any of a group of needle and cone-bearing evergreen trees.

Council on Environmental Quality (CEQ). An advisory council to the President, established by NEPA. It reviews federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.

Cover. Vegetation used by wildlife for protection from predators, or to adverse weather conditions, or in which to reproduce. The different types are identified as hiding cover, thermal cover, and security areas.

Cover/Forage Ratio. The ratio, in percent, of the amount of area in cover conditions to that in forage conditions.

Cunit (CCF). One hundred cubic feet. A measurement for timber volume.

Cultural or Heritage Resources. The physical remains of human activity (artifacts, ruins, burial mounds, pertroglyphs, etc.) having scientific, prehistoric, or social values.

Cumulative Effect. The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can also result from individually minor but collectively significant actions taking place over a period of time.

## D

Developed Recreation. Recreation dependent on facilities provided to enhance recreation opportunities in concentrated use areas. Examples are ski areas, resorts and campgrounds.
Dispersed Recreation. Recreation that occurs outside of developed recreation sites; requiring few, if any, facilities or other improvements; and includes such activities as hunting, hiking, viewing scenery and cross-country skiing.

## E

Ecosystem. The organisms of a particular habitat together with the physical environment in which they live; a dynamic complex of plant and animal communities and their assosicated environment.

Ecosystem management. Using an ecological approach to achieve the multiple-use management of national forests and grasslands by blending the needs of people and environmental values in such a way that national forests and grasslands represent diverse, healthy, productive and sustainable ecosystems.

Edge. Where plant communities meet or where successional stage or vegetation conditions within the plant community come together.

Effects (or impacts). Environmental consequences (the scientific and analytical basis for comparison of alternatives) as a result of a proposed action. Effects may be either direct, which are caused by the action and occur at the same time and place, indirect, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable, or cumulative.

Endangered Species. Any plant or animal species which is in danger of extinction throughout all or a significant portion of its range. (Endangered Species Act of 1973).

Endemic. The population of potentially injurious plants, animals, or diseases that are at their normal, balanced level, in contrast to epidemic.

Ephemeral Streams. Streams that flow only as a direct response to rainfall or snowmelt events. They have no baseflow.

Epidemic. The population of potentially injurious plants, animals, or diseases that are widely prevalent, and exceed their normal, balanced level, in contrast to endemic levels.

Erosion. Detachment or movement of soil or rock fragments by water, wind, ice, or gravity. Accelerated erosion is much more rapid than normal, natural, or geologic erosion, primarily as a result of the influence of activities of people animals, or natural catastrophes.

Even-aged Management. The application of a combination of actions that results in the creation of stands of trees of essentially the same age, growing together. Clearcut, shelterwood, or seed tree cutting methods produce even-aged stands.

## F

Forage. Vegetation used for food by wildlife, particularly big game wildlife and domestic livestock.

Forage Areas. Vegetated areas with less than 60 percent combined canopy closure of tree and tall shrub (greater than seven feet in height).

Foreground (Visual Distance Zone). That part of a scene, landscape, etc., which is nearest to the viewer, and in which detail is evident, usually one quarter to one half mile from the observer.

Fry. Recently hatched fish.

Fuels. Combustible materials present in the forest which potentially contribute a significant fire hazard.

Fuels Management. Manipulation or reduction of fuels to meet Forest protection and management objectives while preserving and enhancing environmental quality.

G

Group Selection. A modification of the selection system in which trees are removed periodically in small groups, resulting in openings that are at least one and one-half times the height of the trees removed. The objective is to create a balance of size and age in a mosaics of contiguous groups in the same forest.

## H

Habitat Type. (Vegetative). An aggregation of all land areas potentially capable of producing similar plant communities at climax.

Hardwoods. A conventional term for the wood of broadleaf trees.

Hiding Cover. Vegetation capable of hiding 90 percent of a standing adult deer or elk at 200 feet or less. Includes some shrub stands and all forested stand conditions with adequate tree stem density or shrub layer to hide animals. In some cases, topographic features also can provide hiding cover.

## I

Immediate Foreground (Visual Distance Zone). That part of the foreground which is extremely critical for visual detail, usually within 400 feet of the observer.

Indicator Species. Species of fish, wildlife, or plants adapted to a particular kind of environment, which reflect ecological changes caused by land management activities.

Indirect Effects. Secondary effects which occur in locations other than the initial action or significantly later in time.

Individual Tree Selection. The selection of trees for harvest based on individual tree characteristics, and their position within the stand structure.

Inland Native Fish Strategy. A decision amending Regional Guides for the Forest Service's Intermountain, Northern, and Pacific Northwest Regions, and Forest Plans for 22 National Forests. The strategy provides interim direction to protect habitat and populations of resident native fish, through riparian management objectives, standards and guidelines, and monitoring requirements.

Interdisciplinary Approach. Utilization of one or more individuals representing areas of knowledge and skills focusing on the same task, problem, or subject. Team member interaction provides needed insight to all stages of the process.

Intermittent Stream. A stream which flows only at certain times of the year when it receives water from springs or from some surface source such as melting snow.

Irretrievable. Applies to losses of production, harvest, or a commitment of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost during the time an area is used as a winter sports (recreation) site. If the use is changed, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.

Irreversible. Applies primarily to the use of nonrenewable resources, such as minerals, or cultural resources, or to those factors that are renewable only over long time spans, such as soil productivity. Irreversible also includes loss of future options.

Issue. A point, matter, or question of public discussion or interest, to be addressed or resolved through the planning process.

Issue Indicator. A specific, measurable element which expresses some feature or attribute relative to an issue.

## L

Land Allocation. The assignment of a management emphasis to particular land areas with the purpose of achieving goals and objectives. Land allocation decisions are documented in environmental analysis documents, such as the Forest Plan for the Idaho Panhandle National Forests.

Landtype. A unit of land with similar designated soil, vegetation, geology, topography, climate and drainage. The basis for mapping units in the land systems inventory.

Leave Island. Group of trees within a harvest unit that are left unharvested.

Lodgepole Pine. See Timber Types.

Long-term Sustained Yield. The estimated timber harvest that can be maintained indefinitely over time, once all stands have been converted to a managed state under a specific management intensity consistent with multiple-use objectives.

## M

Management Area (MA). Geographic areas, not necessarily contiguous, which have common management direction, consistent with the Forest Plan allocations.

Management Direction. A statement of multiple use and other goals and objectives, along with the associated management prescriptions and standards and guidelines to direct resource management.

Management Prescription. A set of land and resource management policies that, as expressed through Standards and Guidelines, creates a Desired Future Condition over time.

Mature Timber. On lands allocated for timber harvest, and for the purpose of this project, mature is defined as trees or stands in which average annual stand growth has culminated, generally around 80 years. In the context of wildlife - Mature forest habitat with characteristics needed to provide habitat for species such as pine marten and pileated woodpecker (generally occurs around age 100).

Middleground (Visual Distance Zone). That part of a scene or landscape which hits between the foreground and background zones.

Mixed Conifer. See Timber Types.

Monitoring and Evaluation. The evaluation, on a sample basis, of Forest Plan management practices to determine how well objectives are being met, as well as the effects of those management practices on the land and environment.

Mortality. Trees of commercial species, standing or down, that have died during a specific period, and were not cull trees at the time of death.

## N

National Environmental Policy Act (NEPA) Process. An interdisciplinary process, which concentrates decisionmaking around issues, concerns, alternatives and the effects of alternatives on the environment.

National Forest Management Act (NFMA). Law passed in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act, requiring preparation of Regional Guides and Forest Plans, and the preparation of regulations to guide that development.

Natural Regeneration. Renewal of a tree crop by natural means using natural seed fall.

No-Action Alternative. The No-Action Alternative is required by regulations implementing the National Environmental Policy Act (NEPA) (40 CFR 1502.14). The No-Action Alternative provides a baseline for estimating the effects of other alternatives. Where a project activity is being evaluated, the No-Action Alternative is defined as one where current management direction would continue unchanged.

Nongame Species. All wild animals not subject to sport-hunting and fishing regulations.

Noxious Weeds. Rapidly spreading plants which can cause a variety of major ecological impacts to both agriculture and wild lands.

## O

Open Road Density. A standard set in the Forest Plan that is applied to most Management Areas important to big game. This road density standard of three-quarters of a mile of open road per square mile of habitat correlates directly to the elk habitat effectiveness of the area.

Outputs. The goods and services produced from and offered on National Forest System lands.

Overmature Timber. For the purpose of this project, overmature stands are considered to be approximately 100 years of age or greater, average annual stand growth has culminated, or in which mortality often exceeds growth.

Overstory. The portion of trees in a forest which forms the uppermost layer of foliage.

## P

Partial Cut. Term to relate harvest units where many trees are left ad forested appearance is retained. Partial cutting usually provides no long-term benefits to forest health and productivity.

Payments to Counties. The portion of receipts derived from Forest Service resource management that is distributed to State and county governments, such as the Forest Service 25 percent fund payments.

Perennial Streams. Streams that flow continuously throughout the year.

Preferred Alternative. The alternative recommended for implementation in an EIS (40 CFR 1502.14).

Prescribed Burning. The intentional application of fire to wildland fuels in either their natural or modified state under such conditions as to allow the fire to be confined to a predetermined area and at the same time to produce the intensity of heat and rate of spread required to further certain planned objectives (i.e., silviculture, wildlife management, reduction of fuel hazard, etc.).

Prescribed Fire. A wildland fire burning under preplanned specified conditions to accomplish specific planned objectives. It may result from either a planned or unplanned ignition.

Prescription. Management practices selected and scheduled for application on a designated area to attain specific goals and objectives.

Programmatic Document. An environmental document that establishes a broad management direction for an area by establishing a goal, objective, standard, management prescription and monitoring and evaluation requirements for different types of activities which are permitted. It also can establish what activities are not permitted within the specific area(s). This type of document does not mandate or authorize the permitted activities to proceed.

Project Area. The geographic area defining the scope of this document and the alternatives proposed by it.

## R

Rain-on-Snow Event. A winter storm that is characterized by precipitation falling as rain, rather than snow, and melting of existing snowpack.

Range of Alternatives. An alternative is one way of managing the National Forest, expressed as management emphasis leading to a unique set of goods and services being available to the public. A range of alternatives is several different ways of managing the Forest, offering many different levels of goods and services.

Reforestation. The natural or artificial restocking of an area with forest trees; includes measures to obtain natural regeneration, as well as tree planting and seeding. The work is done on National Forests to produce timber and other forest products, protect watershed functioning, prevent erosion, and improve other social and economic values of the forests, such as wildlife, recreation, and natural beauty.

Regeneration. The renewal of a tree crop, whether by natural or artificial means. This term may also refer to the crop (seedlings,saplings) itself.

Regeneration Harvest. Used in reference to clearcut, seedtree and shelterwood harvest methods which remove an existing stand to prepare a site for regeneration.

Rehabilitation. To return unproductive lands, other than roads and trails, into good health through stabilization so as to produce the same vegetation (or similar species) as found on adjacent areas.

Residual Stand. Trees remaining standing after some event, such as selection cutting.

Restricted Road. A National Forest road or segment which is restricted from a certain type of use or all uses during certain seasons of the year or yearlong. The use being restricted and the time period must be specified. The closure is legal when the Forest Supervisor has issued and posted an order in accordance with 36 CFR 261.

Riparian Areas/Habitats. Areas of land that are directly affected by water, usually having visible vegetation or physical characteristics reflecting this water influence. Streamsides, lake edges, or marches are typical riparian areas.

Road Maintenance. The upkeep of the entire Forest Development Transportation Facility including surface and shoulders, parking and side areas, structures, and such traffic-control devices as are necessary for its safe and efficient utilization.

Rotation. The planned number of years required to establish (including the regeneration period) and grow timber crops to a specified condition or maturity for regeneration harvest. Selected management prescriptions provide the basis for the rotation age.

## S

Salvage Harvest. The cutting of trees that are dead, dying, or deteriorating before they lose commercial value as sawtimber. The removed trees are generally overmature, damaged by fire, wind, insects, fungi or other injurious agencies.

Sanitation Harvest. Removal of dead, damaged or susceptible trees to prevent the spread of pests or pathogens.

Sawtimber. Trees containing at least one 12-foot sawlog or two noncontiguous 8-foot log, and meeting regional specifications for freedom from defect. Softwood trees must be at least 9 inches in diameter at breast height, and hardwood trees must be 11 inches in diameter at breast height.

Scoping. The procedures by which the Forest Service determines the extent of analysis necessary for a proposed action, i.e., the range of actions, alternatives, and impacts to be addressed, identification of significant issues related to a proposed action, and establishing the depth of environmental analysis, data, and task assignments needed.

Sediment. Any material carried in suspension by water, which will ultimately settle to the bottom. Sediment has two main sources: from the channel area itself and from disturbed sites.

Seed Tree. A tree selected as a natural seed source within a shelterwood or seedtree harvest cut; sometimes also reserved for seed collection.

Seed Tree Harvest. Similar to clearcutting, except a smaller number of better seedbearing trees of the desired species per acre are left singly or in small groups distributed over the area.

Seedlings and Saplings. Non-commercial-size young trees, generally occurring in plantations.

Selection Harvest. The periodic removal of trees, usually at 10-20 year intervals, individually or in small groups, from an uneven-aged forest in order to realize yield and establish regeneration of irregular constitution.

Sensitive Species. Those species identified by the Regional Forester for which population viability is a concern as evidenced by significant current or predicted downward trends in (a) population numbers or density, or (b) habitat capability that would reduce a species' existing distribution.

Seral Stage. A transitory or developmental stage of a biotic community in an ecological succession (does not include climax successional stage or pioneer stage).

Shade Intolerant. Tree species which regenerate best in direct sunlight.

Shade Tolerant. Tree species which regenerate best in a shaded environment.

Shelterwood Harvest. A regeneration system in which a new stand is established under the protection of a partial canopy of trees. A minimum of two harvests is required, the last or final removal cut removing the remaining old stand after the new stand is established. This results in continuous coverage of large or small trees.

Silvicultural System. A management process whereby forests are tended, harvested, and replaced, resulting in a forest of distinctive form. Systems are classified according to the method of carrying out the cuttings that remove the mature crop and provide for regeneration, and according to the type of forest thereby produced.

Site Preparation. A general term for a variety of activities that remove or treat competing vegetation, slash, and other debris that may inhibit the establishment of regeneration.

Slash. The residue left on the ground after felling and other silvicultural operations and/or accumulating there as a result of storm, fire, girdling, or poisoning of trees.

Snag. A standing dead tree usually without merchantable value for timber products, but may have characteristics of benefit to some cavity nesting wildlife species.

Special Use Permit. A permit issued under established laws and regulations to an individual, organization, or company for occupancy or use of National Forest System lands for some special purpose.

Stand. A community of trees or other vegetation uniform in composition, constitution, spatial arrangement, or condition to be distinguishable from adjacent communities.

Stand Conversions. Application of silvicultural practices that change the species composition of trees in a stand, including planting a variety of species, discrimination against undesirable species during thinning, and other practices that naturally discriminate against undesirable species, such as specific site preparation and harvest methods.

Stocking. The degree to which trees occupy the land, measured by basal area and/or number of trees by size and spacing, compared with a stocking standard; that is, the basal area and/or number of trees required to fully utilize the land's growth potential.

Stream Order. It is often convenient to classify streams within a drainage basin by systematically defining the network of branches. Each nonbranching channel segment (smallest size) is designated a first-order stream. A stream which receives only first-order segments is termed a second-order stream, and so on. The order of a particular drainage basin is determined by the order of the principle or largest segment.

Successional Stage. A stage or recognizable condition of a plant community which occurs during its development from bare ground to climax.

Suitable Forest Land. Forest land (as defined in CFR 219.3, 219.14) for which which technology is available that will ensure timber production without irreversible resource damage to soils, productivity, or watershed conditions; for which there is reasonable assurance that such lands can be adequately restocked (as provided in CFR 219.4); and for which there is management direction that indicates that timber production is an appropriate use of that area.

Sustained Yield. See Long-term Sustained Yield.

## T

Thermal Cover. Vegetation used by animals to modify the adverse effects of weather. A forest stand that is at least 40 feet in height with tree canopy cover of at least 70 percent provides thermal cover. These stand conditions are achieved in closed sapling-pole stands and by all older stands unless the canopy cover is reduced below 70 percent. Deciduous stands may serve as thermal cover in summer, but not in winter.

Thinning. Cutting in even-aged stands to redistribute growth potential or benefit the quality of the residual stand.

Threatened Species. Any species of plant or animal which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range, and which has been designated in the Federal Register as such. In addition, some States have also declared certain species as Threatened in their regulations or statutes.

Tiering. Refers to the coverage of general matters in broader Environmental Impact Statements or Environmental Assessments with subsequent other related statements in Environmental Assessments incorporated, by reference, the discussions contained in the previous document, solely on the issues specific to the statement subsequently prepared.

Timber Base. Lands within the Forest that are capable, available, and suitable for timber production.

Timber Types. A descriptive classification of forestland based on present occupancy of an area by tree species (i.e., lodgepole, mixed conifer). More appropriately called forest cover types, this category is further defined by the composition of its vegetation and/or environmental factors that influence its locality.

Tractive. Any logging system which uses ground-based machines.

## U

Understory. Vegetation (trees or shrubs) growing under the canopy formed by taller trees.

Uneven-age Management. The application of a combination of actions needed to simultaneously maintain continuous high-forest cover. Cutting methods that develop and maintain uneven-aged stands are individual-tree and group selection.

Unplanned Ignition. A fire started at random by either natural or human causes or a deliberate incendiary fire.

Unroaded. Area characterized by its lack of existing roads, but not designated as a Roadless Area or Wilderness.

Unsuitable Forest Land. Lands not selected for timber production in Step II and III of the suitability analysis during the development of the Forest Plan due to: (1) the multiple-use objectives for the alternative preclude timber production; (2) other management objectives for the alternative limit timber production activities to the point where management requirements set forth in 36 CFR 219.27 cannot be met; and (3) the lands are not cost-efficient over the planning horizon in meeting forest objectives that include timber production. Land not appropriate for timber production shall be designated as unsuitable in the Forest Plan.

## V

Viable Population. Minimal population level to maintain the genetic diversity of a species.

Viewshed. Sub-units of the landscape where the visitor's view is contained by topography similar to a watershed.

Visual Quality Objective (VQO). A system of indicating the potential expectations of the visual resource by considering the frequency an area is viewed and the type of landscape.

Visual Resource. The composite of landforms, water features, vegetative patterns and cultural features which create the visual environment.

## W

Watershed. Entire area that contributes water to a drainage system or stream.

Wildfire. Any wildfire not designated and managed as a prescribed fire with an approved prescription.

Wildlife Diversity. The relative degree of abundance of wildlife species, plant species, communities, habitats or habitat features per unit area.

## Y

Yarding. A method of bringing logs in to a roadside area or landing, for truck transport. Methods may include forms of skyline cable logging systems, ground-based skidding, balloon, helicopter, etc.

Yield. Measured output; for example, timber yield or water yield.

# APPENDIX A
# PUBLIC INVOLVEMENT IN THE ALTERNATIVE DEVELOPMENT AND REVIEW PROCESS

## SCOPING AND ISSUE IDENTIFICATION

## Public Notice and Outreach

Scoping is an early process for identifying the issues related to the proposed action, and the extent of those issues. The public was notified of this project in several ways:

- "Quarterly Schedule of Proposed Actions" for the IPNFs (January 2001 issue)
- legal ad in the newspaper of record (Spokesman-Review) dated February 16, 2001
- scoping letter for those that requested additional information dated February 16, 2001

During scoping, letters were received from Bryan Bird (Forest Conservation Council), Jeff Juel (Ecology Center), and Mike Mihelich (Kootenai Environmental Alliance). Copies of their letters and Forest Service responses are provided later in this section.

The team has considered concerns identified by the public and incorporated their ideas whenever possible. The following briefly identifies the issues of concern and how each was incorporated into or addressed by alternative development.

## Issue Identification Process

### Issues Discussed in Detail in This Environmental Assessment

There are several issues considered as factors in the decision to be made. Some are those that are of sufficient concern to drive development of alternatives to the extent feasible within the physical, biological, and legal limits of forest management. The issues are specific to this geographic area and this proposal. Others were not key in developing alternative concepts, but are important for their value in assessing specific protective measures. These protective measures become features of the alternatives and/or specific mitigation measures (both are described in Chapter II). These issues have been addressed in detail in Chapter III either because the effects will have a bearing on the decision to be made, or because these resources are of interest or concern to the public. They include forest vegetation, fire and fuels, economic values (finances), aquatic resources (water resources and fisheries), and wildlife.

### Issues Not Discussed in Detail in This Environmental Assessment

During the course of this analysis, the public and project resource specialists identified other issues that could be relevant to the proposed project. Each issue was considered by the appropriate team member to determine if/how it is related to the proposal and the level of potential impact. As a result, a decision was made either to address the issue in detail in this EA, or not to address the issue in detail. There were three situations in which an issue was not addressed in detail: 1) the issue is beyond the scope of this project; 2) there will be little or no effect to the issue of concern; or 3) the issue has been effectively addressed through specific alternative features and/or mitigation measures. These include:

- *Specific Threatened and Endangered wildlife species*
  *(grizzly bear, gray wolf, bald eagle, lynx)*
- *Specific Sensitive wildlife species*
  *(peregrine falcon, white-headed woodpecker, boreal toad, common loon, Coeur d'Alene salamander, harlequin duck, northern leopard frog, Townsend's big-eared bat, wolverine)*
- *Specific Management Indicator species*
  *(American marten, pileated woodpecker)*

- *Other wildlife species and habitat*
  *(boreal owl, forest land birds, snags and down dead woody habitat)*
- *Old growth forest*
- *Threatened, Endangered, Proposed, and Sensitive Plants*
- *Noxious weeds*
- *Air quality*
- *Soils*
- *Heritage resources*
- *Grazing allotments*
- *Transportation planning*
- *Public safety*
- *Social values*
- *Recreation*
- *Scenery*

For each of these, a brief overview of the issue and the reason for not providing further documentation in the EA is provided below.

## *Threatened, Endangered and Proposed Wildlife Species*

**Grizzly Bear:** The grizzly bear is not likely to occur on the district, and the district is not within a recovery area (USFWS 1997, MacCracken and Goble 1994). Grizzly bears were more abundant within the Coeur d'Alene River District historically than they are today. Hudson Bay trapping records show grizzly bears were harvested by early fur trappers in the Coeur d'Alenes, primarily in the northern portion of the Coeur d'Alenes (Coeur d'Alene Geographical Assessment). Today the basin is influenced by human presence and development through timber harvesting and associated road building, mining, recreation, and urbanization. These changes have influenced the distribution of wildlife species, including the grizzly bear (Coeur d'Alene Geographical Assessment).

Grizzly bears are occasionally sighted in the Coeur d'Alene River Basin, especially in the Upper North Fork area. The most recent sightings occurred in 1995. Both sightings were in the Upper North Fork. No high quality grizzly bear habitat has been identified in the Coeur d'Alene Mountains. The Little Ucelly Area does not lie within a recovery area and there have been no sightings of grizzly bears in the area within the last 10 years. The project would not result in the long-term degradation of grizzly bear habitat. There would be no effect to grizzlies.

**Gray Wolf.** No documented wolf sightings have occurred in the Little Ucelly Heli Bug project area. There are no known wolf sightings in the Eagle Creek drainage. The likelihood of affecting wolves by activities proposed under the Little Ucelly project is low since there are no known packs and no known sightings within the project or immediately adjacent areas. There is winter range proposed for harvest under this proposal. This could affect prey availability unless winter range restrictions are placed on this project. Cover:forage ratios would change slightly in this area with two regeneration harvests, but most of the canopy loss is from Douglas-fir bark beetle mortality which has already occurred. It is unlikely that the current prey population is limiting for the gray wolf given the high numbers of prey availability.

Analysis shows that design features would adequately protect big-game populations. Alternative 2 would result in no increase in road density. Barrierred road would be required to be gated during periods of use greater than 2 weeks. Under alternative 3, 1.2 miles of roadway would be brushed open and 0.2 miles of temporary road would be built. Both roadways would be closed by the purchaser immediately after use with a front-end obliteration, temporary road would be completely obliterated. This project may have a minor increase in disturbance short term (from several weeks to several months depending on the alternative selected) above the existing levels and could affect prey base by temporarily displacing big game. In the long term, under either alternative, there is no substantial change to existing conditions with no change to road densities (though it would take some time for the 1.2 miles of opened road to revegetate) or habitat capability of the area. Though the project area is historical potential habitat, it is not likely to be occupied due to fragmentation and year-round minor disturbances from private ownership and residences in the area. The scope of this project is small and generally of short duration. Since part of the treatment areas are in big game winter range, this project could affect individuals by affecting the prey base. Therefore, if winter restrictions of no harvest when snow

depths exceed 1 foot are implemented, then there would be no affect to the gray wolf. If winter logging is implemented, the project may affect, not likely to adversely affect the gray wolf.

**Bald eagle.** A pair of bald eagles are occassionally sighted during the winter months at the confluence of Eagle and Prichard Creeks, just outside the project area (Frigard, personal communication). These eagles most likely winter along the North Fork of the Coeur d'Alene River. No night roost sites or important foraging areas for eagles have been identified along the North Fork of the Coeur d'Alene River. However, the majority of wintering eagles are not associated with large communal roosts or foraging areas (Steenfof et.al. 1983). Because of this, areas used by just a few eagles are also important to the survival and recover of the bald eagle population (ibid). None of the proposed harvest would impact perch or roost areas for the bald eagle, however potential flight paths of helicopters could disturb wintering bald eagles (Stalmaster et.al.). Disturbance resulting from use of helicopters could be avoided if the confluence area is buffered by a ½ mile no flight zone during the winter period (ibid). If a ½ mile no flight zone is maintained during the winter period of 12/1 through 3/31, then the project would have no affect upon the bald eagle. If the no flight zone is not is implemented, the project may affect, not likely to adversely affect the bald eagle.

**Lynx.** The Canada Lynx Conservation Assessment and Strategy (USDA Forest Service, 2000) has identified high integrity areas or Lynx Analysis Units (LAU's) to be managed for lynx. Six LAU's and two Lynx Travel Corridors have been established on the Coeur d'Alene River District for the management and further protection of lynx populations. None of the harvest units are located within or immediately adjacent to any of the Lynx Analysis Units or Lynx Travel Corridors. The Bitterroot Divide South LAU has a couple of fingers that extend down major ridgelines toward this area from the east. The project areas lie outside the LAU and no roads associated with the project bisect the LAU. There has been one documented lynx sighting in the Eagle Creek drainage. However, it was over 15 years ago and the sighting was only of lynx tracks. With the increase in human presence in the Prichard and Eagle floodplain areas, it is unlikely that the lynx ventures down into this country. Therefore this project will have no effect on lynx populations.

## *Sensitive Wildlife Species*

**Peregrine Falcon:** A decline in American peregrine falcon populations began in the 1950s leaving western populations severely depressed (Levine and Melquist, 1996). The Idaho population was essentially extirpated by 1974 (Bechard et al. 1987). In 1982, work to restore this population was begun through the release of captive-produced young using a process referred to as "hacking." Reintroductions of peregrine falcons have occurred in North Idaho. The peregrine falcon was taken off the threatened and endangered species list during the summer of 1999.

Peregrine falcons are known to exist in North Idaho. These birds prefer steep rocky outcrops and cliffs for nesting. They are often associated with water because of the abundant prey base that can be found in wetlands. Besides waterfowl, these birds prey upon a variety of songbirds.

Reintroduction of peregrine falcons has occurred in North Idaho. Surveys along the Clark Fork River in 1996 found an adult pair of peregrines re-occupying a historic cliff near a release site. No successful nesting attempt was observed; however, the pair was observed engaging in courtship activities (Levine, 1996). Another historic, but currently unoccupied eyrie, lies in the Bernard Peak area. Since there is no known active or historic eyrie within the Little Ucelly Project Area no further analysis of this species will be done.

**White-headed woodpecker.** The white-headed woodpecker is restricted to drier forest types dominated by pine trees in the mountains of far western North America. Abundance appears to decrease north of California. There are generally uncommon or rare in Washington and Idaho and quite rare in British Columbia. Modern forestry practices such as clearcutting, snag removal and fire suppression have fragmented forests and contributed to local declines of the species, particularly north of California (Kimball et al, 1996). However, this species persists in burned or cut-over forests with residual snags and stumps; thus populations are more tolerant of disturbance than those species associated with closed-canopy forest (Raphael et al., 1987). Because of habitat similarities with flammulated owl, the white-headed woodpecker is considered a guild with and addressed by the analysis of effects to flammulated owl in this document.

**Boreal toad.** Preliminary analysis shows that Inland Native Fish Strategy guidelines concerning riparian habitat conservation areas within 150 ft. of the edge of wetlands would prevent sedimentation of toad breeding habitat. All proposed treatment units are upslope, a long way from any wetland habitat. One intermittent stream channel is adjacent to harvest unit 5 and a 75 foot no harvest buffer will be maintain in this area. The ephemeral draw between units 7a and 7b will also be buffered. No alternatives will measurably change water yields or flows downstream from the treatment areas.

There are no stream crossings associated with temporary road construction or road reconstruction under alternative 3. Therefore, it was determined that there would be no affect to boreal toads or habitat with this proposal.

**Common loon**. Loons are large, heavy-bodied birds with their legs and feet positioned far to the rear. This allows them to propel quickly under water but renders them unable to walk well on land or to take off without a long expanse of water. They require lakes of at least 10 acres in order to gather enough speed to take off. Lakes suitable for nesting are 10 acres or larger with emerging shoreline vegetation and secluded areas for nesting and brood rearing (USDA Forest Service, 1989). Loons have been sighted on Coeur d'Alene Lake and Fernan Lake. Since loons are located on lakes, and the project area is not near or adjacent to a lake, the proposed actions would not affect habitat for loons. No further analysis and discussion is necessary for this species.

**Coeur d'Alene salamander**. All alternatives associated with this project would have a minimal effect on water quality over the existing condition created by the beetles (please refer to the watershed discussion). No timber harvest would occur within streamside buffers defined by the Inland Native Fish Strategy. Temporary road construction and road reconstruction scheduled under alternative 3 would not involve any stream crossings that could generate sediment into the system. No known or potential Coeur d'Alene Salamander habitat would be impacted by this project. No further analysis and discussion is necessary for this species.

**Harlequin duck.** There would be no activities under any of the alternatives that would affect harlequin duck habitat or cause a change in streamflow downstream from the treatment areas. Water quality is expected to be maintained under the action alternatives (please refer to the "Watershed" section for a detailed discussion on water yield). Harvest methods, upslope road locations, and stream channel buffering would result in minimal sediment transportation downstream from the treatment area. The lower reaches of Prichard and Eagle Creeks are thought to be too degrading from past mining activities to provide much potential habitat for harlequin ducks. For these reasons, the risk factors to harlequin ducks have been avoided through project location and design features. Therefore, no further analysis or discussion is warranted.

**Northern leopard frog.** Preliminary analysis shows that Inland Native Fish Strategy guidelines concerning riparian habitat conservation areas within 150 feet of the edge of wetlands would prevent sedimentation of frog breeding habitat. As described above under the boreal toad section, this project would have no effects to the northern leopard frog or its habitat. Therefore, no further analysis or discussion is needed.

**Townsend's big-eared bat:** These sensitive mammals are found in a variety of habitats, from arid juniper/pine forests to high-elevation mixed conifer forests. Big-eared bats winter in large groups in caves or old mines. They are thought to be very sensitive to human disturbance (USDA Forest Service, 1989) During 1997 surveys on the Sandpoint Ranger District, a maternity site for big-eared bats was found in a mine, indicating that these bats are present on the Idaho Panhandle National Forest. There are no known mine portals within the project area. There are two small portals outside the project area about 1/3 of a mile from unit 11(Project Files –Wildlife). Unit 11 (designated for cable yarding) would be outside of the recommended Habitat Conservation Area, therefore there will be no impact to Townsend's big-eared bat with this proposal and no further discussion and analysis is necessary.

**Wolverine**. Based on their wide-ranging nature, lack of existing habitat components (i.e. both denning habitat and large sparsely inhabited wilderness areas) and sighting information, recorded wolverine occurrences in the Coeur d'Alene River drainage are likely transient individuals. There have been no documented wolverine sightings in the Eagle Creek drainage. There is no wolverine denning habitat within or adjacent to the activity areas of the Little Ucelly Heli Bug project. Some of the roadless areas to the north and east near the State Line Divide, 5 miles from the project may provide some potential denning habitat but it is unlikely that it is used because of recreational disturbances especially in the winter months. Therefore, risk of disturbance during the sensitive denning period is not a factor in this project. Relatively high road densities in the drainage (on both National Forest and non-National Forest System lands) limit the drainage's suitability as wolverine habitat. Reopening of 1.2 miles of brushed in roadway could temporarily increase the risk of incidental trapping but the front-end obliteration after purchaser activities should minimize potential use by the public. Since part of the treatment area is on winter range were transient males could occur in this area, the proposal may impact individuals unless no harvest winter range restrictions are implemented. If winter range restrictions are implemented, then there will be no affect to wolverines with this proposal. No additional analysis is necessary.

## *Management Indicator Wildlife Species*

Forest Conservation Council identified concerns related to protection of habitat for Management Indicator Species in general.

**American Marten.** This species is in the same guild as the fisher. Any changes in fisher habitat are the same for marten. Refer to the fisher analysis in Chapter III (Wildlife) for impacts to the marten.

**Pileated Woodpecker.** Design features for alternatives would assure that snags for pileated woodpecker would be maintained in harvest units under all alternatives. The project is designed to maintain at least the minimum number of snags needed to support woodpecker populations, distributed across the landscape (please refer also to the discussion on "Snags and Dead Down Woody Habitat," in the Wildlife section of Chapter III). The minimum number of snags left in any unit with a canopy closure greater than 50% would be adequate to maintain a distribution of snags across the landscape. Snag retention within treatment units will also be of the largest diameter classes which is also preferred by pileated woodpecker. Also, not all areas affected by bark beetle mortality are being considered for harvest within the project area. Some snag patches are being retained for habitat. For these reasons, it is unlikely the project would have measurable impacts on pileated woodpeckers. Therefore, no further discussion or analysis is necessary.

## *Other Wildlife Species and Habitat*

**Boreal owl.** Stands and areas impacted by the proposed actions lie below the preferred spruce-fir zone for boreal owls. Therefore, because capable or suitable habitat would not be affected, this project would not impact boreal owls. No further analysis and discussion is necessary for this species.

**Forest land birds.** Forest Conservation Council expressed concerns related to the need for the cumulative effects analysis to address neotropical migrant birds, among other issues. One of the primary concerns to neotropical migrant birds is the risk of nest parasitation by cowbirds. Brown-headed cowbirds pose a threat to neotropical migrant birds. The cowbird is a nest parasite which lays its eggs in the nests of over 250 species of birds (Friedmann and Kiff, 1985), the majority of which are neotropical migrants. The clearing of forests for agriculture and the introduction of livestock in the west have expanded the range of cowbirds (Robinson, Scott et al., 1992). There is some indication that cowbirds may currently be on the decline in Idaho (Ritter, pers. comm.). Cowbirds pose a threat to many hosts because of the cowbirds extraordinary productivity and the extent to which cowbird parasitism reduces host productivity. Rothstein (1984) found cowbirds traveling up to 7 kilometers between feeding and nest searching sites. Timber harvest in forested landscapes provide the cowbird with opportunities for nest parasitism. Types of logging practices used may have little impact on cowbird parasitism levels and cowbirds are just as likely to parasitize nests in group selection cuts as in clearcuts (Robinson, et al., 1992).

The flat, floodplain, private ownership area along the lower reaches of Eagle receives some grazing activity but it is currently limited to a few horses. There was some cattle grazing in this area in the past, so it is likely that there are some cowbirds present in the floodplain. There are no grazing allotments on National Forest lands within the project area. With the presence of cowbirds, it is likely that there is some nest parasitation on National Forest but it is expected to be minor. A wide range of canopy conditions exist throughout the study area providing adequate habitat for a wide range of neotrophical birds with or without the proposed treatment. Because a detailed analysis has been conducted for other species that share similar habitats and based on the effects described above, species in this group are not analyzed further in this document.

**Snags and dead down woody habitat.** Historically, ecosystems in north Idaho were shaped by disturbance patterns that altered the size and distribution of various structures across the landscapes. Forest succession, wind damage, insects and disease, fire and other disturbances created snags in areas that ranged in size from individual trees to small patches or stands to entire drainages (1,000 acres or more). Consequently, snag densities varied across the landscape, from areas with low levels of snags to other areas with abundant snags.

Recent studies indicate that viable woodpecker populations occurred in areas with about four snags per acre (Bull et al. 1997). Managing for viable populations of snag dependent species does not require providing for snags on every acre. Bull et al. (1997) recommends providing snags in every 5 to 25-acre stand to satisfy distribution needs. The present bark beetle outbreak has, is and will continue to kill live trees (though the beetle population is declining), thereby creating snags and areas of high snag densities. The scope of the bark beetle infestation is discussed elsewhere in this document.

In the action alternative some snags created by bark beetles would be harvested and lost as habitat for cavity dependent species. However, the potential effects on snags and down wood is ameliorated by a number of factors.

Not all areas impacted by bark beetles would be treated; it is not the intent of this project to remove all pockets/patches of dead trees created by the Douglas-fir bark beetle outbreak. Concentrated pockets of snags would remain untreated and unaffected by any management across the landscape. Areas outside of proposed treatment areas are and would continue to provide snags in excess of numbers shown to support viable populations. Areas would be reserved from treatment within Inland Native Fish Strategy buffers. These areas along with untreated stands would contribute to snags and cavity habitat.

Design features of the project were devised to ensure the retention and selection of snags at a level and distribution which has been shown to support viable populations of species which use snags and logs (Features Common to All Action Alternatives, Chapter II). Snags and snag replacements would be retained in all treatment units at levels recommended by scientific literature based on recent studies. Snag retention objectives exceed Forest Plans standards and snag retention levels developed by Thomas et al. (1979). Snag retention objectives, including compensation levels are consistent with recent published data that suggests that populations of cavity nesters were viable in stands of ponderosa pine and mixed conifer forests that contained about four snags per acre (Bull et al. 1997).

To retain a down wood component, marking guides will designate that 15-20 down logs per acre be retained on moist sites and 3-6 logs per acre will be retained on dry sites. These logs should be at least 12 inches in diameter and 6 feet or more in length. The snag retention component will add to the down wood component over time.

Four to six of the largest dead trees would be retained in the treatment units. The project would meet Forest Plan goals and objectives for cavity habitat, and Forest Plan standards would be met or exceeded in all alternatives.

## *Old Growth Forest*

The Forest Conservation Council and Ecology Center identified old growth as a concern. Although old growth is not addressed as a key issue, it is described as part of the Forest Vegetation and Wildlife discussions in Chapter III. Old growth has declined from a historic average of about 21 percent of the area (Geographic Assessment, page 39) to zero in the project area (Chapter III, page III-7). This was generally the result of the aggressive harvest of white pine and larch and the loss of white pine to blister rust. Stands of grand fir and Douglas-fir that have replaced white pine and larch in the ecosystem are very susceptible to root disease and insect attack. These stands are unlikely to provide the same closed canopy, multi-storied mature and old forest structure containing large white pine and larch that was once a major component of the project area. Although the current stands may contain large old trees and provide some old growth characteristics, openings caused by root disease may be common, and a key component of the remnant white pine and larch will be missing.

A description of structural stages is provided in Chapter III (page III-9; Table III-9). The Little Ucelly Heli Bug project area encompasses approximately 1,756 acres, all of is National Forest System lands. There is no old forest structure or allocated old growth within the project area. However, there are numerous allocated old growth stands south, east, and north of the project area (Project Files – Vegetation). The project area is within a portion of three old growth analysis units, each of which have over 10% of the stands being managed for their old-growth characteristics (Chapter III, page III-57).

## *Threatened, Endangered and Proposed Plant Species*

The US Fish and Wildlife Service (USDI 1999) list two species as threatened for the Idaho Panhandle National Forests, water howellia (*Howellia aquatilis*) and Ute ladies'-tresses (*Spiranthes diluvialis*). There are no documented occurrences of these species on the Idaho Panhandle National Forests, although suitable habitat is suspected to occur. The recent Douglas-fir beetle outbreak has not affected suitable habitat for water howellia or Ute's ladies'-tresses. There is no proposed treatment within or adjacent to potentially suitable habitat for water howellia. It was determined that implementation of any alternative would have no effect on water howellia or Ute ladies'-tresses or their habitat.

The Spaulding's catchfly (*Silene spauldingii)* is a candidate species for listing as threatened for the Idaho Panhandle National Forests. It's potential habitat is in grasslands in dry forest types. No known occurances are known on the Coeur d'Alene River District, however it has been found in Spokane County. The drier sites in the Little Ucelly Heli

Bug project area, especially unit 11, may contain suitable habitat for Spaulding's catchfly. Dry site areas will be surveyed prior to implementation of this project. If Spaulding's catchfly plants are found, units and treatments will be modified or dropped to protect plant occurrances. Therefore, based on protection and mitigation features, implementation of any alternative would have no effect on the Spaulding's catchfly. There are no Federally listed endangered plants for the Idaho Panhandle National Forests. Please refer to the Project Files (TES Plants) for additional information.

### *Noxious Weeds*

While existing infestations of certain weed species may continue to increase on Federal lands and adjacent private lands, features of the action alternatives would serve to minimize (but not eliminate) the risk of weed spread. Please refer to the "Features Common to All Action Alternatives" discussion in Chapter II for supporting information. Weed treatment will occur in compliance with the Coeur d'Alene River Ranger District Noxious Weed Environmental Impact Statement and Record of Decision (USDA Forest Service, 2000).

### *Air Quality*

Because use of prescribed fire would be based on smoke management guidelines, current air quality standards would not be exceeded under either action alternative. Over the long term, prescribed fire may reduce total particulates by reducing the risk of large wildfires that cannot be managed for emissions.

### *Soils*

The Forest Conservation Council identified concerns related to the need for a cumulative effects analysis that addresses soils, among other issues. Alternative development was based in part on the "Soils Guidelines for NEPA Analysis" (Niehoff, 1998). The guidelines helped to determine soil management issues for environmental analysis of alternatives, prepare resource management prescriptions, and identify areas that would require on-site evaluation of proposed management activities. Soils data was used to:

- *identify location of timber harvest and regeneration activities*
- *analyze potential sediment delivery impacts*
- *analyze potential depletion of key nutrients*

To minimize erosion and ensure compliance with State water quality standards, all timber harvest associated with the Little Ucelly Heli Bug project would be completed using Best Management Practices. Slash treatments will be modified as necessary to minimize loss of nutrients in potassium limited soils. For additional information, please refer to "Features Common to All Action Alternatives – Features Designed to Protect Aquatic Resources" in Chapter II. Maps related to soil conditions are provided in the Project Files (Soils).

### *Heritage Resources*

Known sites containing important cultural resources were assessed under previous Environmental Assessments in this area for their historical value and will be protected as appropriate. Any future discovery of cultural resource sites would be inventoried, and protected if found to be of cultural significance. Decisions to avoid, protect, or mitigate inpacts to these sites is in accordance with the National Historic Preservation Act of 1966.

### *Grazing Allotments*

There are no ongoing or foreseeable grazing allotment projects within the project area.

## *Transportation Planning*

The transportation planning for this EA is tiered to the Forest Plan, but has a higher degree of specificity. The goals for transportation facilities in Chapter II of the Forest Plan state in part:

> *Construct the minimum number of roads necessary to permit the efficient removal of timber and mineral resources. Construct and reconstruct roads only to minimum standards necessary to prevent soil loss, maintain water quality, minimize safety hazards for a reasonable and prudent Forest user, and provide access for fire protection where needed to meet management area goals.*

The existing roads coverage was developed from the geographic information systems (GIS) roads layer for the Coeur d'Alene River Ranger District. The project area encompasses a total of approximately 1,756 acres of National Forest System land. Within this project area are approximately 24 miles of road (this includes both system and nonsystem roads). Most of the nonsystem roads in this area are grown over to the point that they are no longer driveable and hydrologically inert. Approximately 9.0 miles of roads would be used to yard and haul timber under Alternative 2, with 10.8 miles of roads used for hauling under Alternative 3.

Roads used to haul and yard timber would be placed on a Level Two or Three maintenance schedule during the life of the sale. The roads which are gated or barriered, and would be used for timber yarding and haul only, would be maintained for low speed travel and for use by high clearance vehicles (Maintenance Level 2). Those which would also be used by the public would be maintained for travel in a standard passenger car (Maintenance Level 3). These roads would be maintained for low speed and would be single lane with turnouts and spot surfacing.

There would be approximately 0.2 miles of temporary road contruction and 1.2 miles of reconstruction needed under Alternative 3. The temporary road would be built, utilized, and closed in the same season under timber sale contract provision C6.4. Roads are located high on the slope and will not need drainage structures. The temporary road would be obliterated and the reconstructed roadway would have a front-end obliteration after use. Alternative 2 would not construct or reconstruct any roadway.

## *Public Safety*

Proposed activities would be accomplished utilizing safety standards based on the Forest Service's Health and Safety Code Handbook (FSH 6709.11). The timber sale contract would contain safety provisions C6.33 – Safety, C6.331 – Safety (Helicopter Operations) under alternative 2, and C6.332 – Safety (Timber Hauling). These provisions require development and implementation of a traffic control plan and other safety requirements.

## *Social Values*

The Forest Conservation Council identified concern that the proposed project would damage social and economic uses and values associated with standing or otherwise intact forest ecosystems. There are social values associated with each of the resources and issues analyzed in this assessment. The Coeur d'Alene River Ranger District currently provides a wide range of economic, recreational, hydrologic, aesthetic and scenic values. These values are present in the areas being considered for treatment under this project. Higher fuel loads associated with concentrations of dead and damaged timber present an increase in fire hazard potential putting all these values at risk. Hillslopes with a high component of dead timber are also often not considered as very aesthetically pleasing to the general public.

Trees killed by the Douglas-fir beetle lose a portion of their value as sawtimber each year they remain unharvested (Douglas-fir Beetle Project EIS, June 1999; page I-10). A large portion of the trees being considered for removal under this project were killed by bark beetles in 1999 or 2000. Based on reports from timber sale purchasers, sale administration, and local mills, timber being removed under the Douglas-fir Beetle Project is running 20-30 percent defective. This is primarily associated with sapwood defect as a result of a rot fungus brought in by the beetle. The timber removed under this project would have similar defect percentages. It is important this timber be removed as quickly as possible to provide for the greatest opportunity for long-term vegetative restoration within the affected areas and for economic benefits to local communities.

The National Forest System is designed to provide for multiple uses and values. It is not the intent to achieve this on every acre but to provide for a diverse range scattered across the forest landscape. The forest is a dynamic system. It is

in a constant state of change though often not very well perceived in human time frames. It is often desirable from a social value standpoint to bring about change gradually in the landscape and to change small areas of the landscape. By reducing the amount of dead and damage timber, fire intensities can be reduced to levels that may allow for initial attack forces to control a fire before it brings about significant change to the visual landscape.

Salvage of wood fiber from beetle-killed trees provides jobs and income to local communities. The demand for timber products is real and is increasing with increasing populations. It is desirable to salvage dead and dying timber to help meet some of the demand so that there is less pressure to harvest green trees. It is also environmentally wise to grow more trees and use more wood as a substitue for non-renewable fossil fuels and materials such as steel, concrete, and plastics (Moore –Greenspirit speech). Salvaging this timber does not come without some disturbance or interruptions to the other social values and services the forest is providing, but these disturbances are of a temporary nature. Recreational experiences may have to be achieved in another area of the forest setting until activities are completed. However, salvage of this material does provide for a funding source for road maintenance on roads used by the recreational public.

### *Recreation*

No developed recreation sites would be directedly affected under any alternative. The proposed activities would have only transitory effects on recreation access and opportunities. The period of disturbance would vary by alternative. Helicopter yarding under Alternative 2 would result in a shorter disturbance period, but it would come with a greater degree of noise disturbance. Alternative 2 would likely only take a month or two to complete, with the helicopter yarding likely complete in a week. Alternative 3 could run anywhere from two to six months depending on the purchaser. There would be some increased traffic from log trucks. Some recreation visitors could temporarily be displaced to other parts of the District during the activity period. Log haul on Roads 978 and 343 would be restricted so that it would not occur on weekends and holidays. Please refer to the Project Files (Recreation) for additional information.

### *Scenery*

All alternatives (including No-Action) would meet the assigned Visual Quality Objectives. Temporary road construction and road reconstruction under Alternative 3 may result in activities in this area being more visually apparent until revegetation of soil disturbance occurs. Please refer to the Project Files (Scenery) for additional information.

# ALTERNATIVE DEVELOPMENT AND MODIFICATION

Development of alternatives was based on existing condition of resources in the project area, issues and concerns identified by the project team and by the public, and the purpose and need identified for the project. The “Federal Guide to Watershed Analysis - Environmental Analysis at theWatershed Scale” (USDA Forest Service, August 1995) was not used in alternative development for this proposal. The “Watershed Analysis” is a process used to focus on proposed activity areas, describe current conditions, and identify possible treatment alternatives. This process has been used for proposals similar in scope (for example, the Burnt Cabin Heli Bug project) and was found to be of limited value for such a small scale project. Although the prcoess was not used to development alternatives, watershed conditions for the Little Ucelly Heli Bug proosal were assessed at the watershed scale, as described in Chapter III. For additional discussion of the use of public comments in alternative development and modification, please refer to Appendix A.

## Alternatives Considered But Eliminated From Further Study

During project development three other proposals were analyzed but dismissed from further consideration. The interdisciplinary team proposed and considered an option that would **utilize only regeneration treatments** since most of the stands fall within the mature sawtimber size class. This alternative was eliminated because of considerable regeneration treatments that have already occurred in the project area.

Another option proposed and considered by the team would **utilize only salvage treatments**. Timber removal under the proposed action is primarily based on salvage of beetle-killed timber. In areas where over 50% of the timber has been killed and logical treatment units can be established, regeneration units are proposed. In this project area, a salvage-only alternative would not demonstrate any substantial difference in loss of canopy that would occur with salvage-only

treatment versus using regeneration treatment, since most of the timber to be cut in regeneration areas is already dead. Therefore, the only change that was being measured was whether the site would be planted or allowed to regenerate naturally. This was not enough of a difference to develop a separate alternative.

A **harvest, restoration only** option was proposed by the Forest Conservation Council (and alluded to by the Ecology Center). This option was considered but dismissed because it would not allow recovery of the economic value of dead and diseased timber, would not reduce fuels in areas of timber mortality to lower fire hazard, and would not promote long-term vegetative restoration in areas of low residual stand stocking, all of which are goals identified in the Purpose and Need, Chapter I. The Little Ucelly Heli Bug project proposal was developed in response to recent Douglas-fir bark beetle mortality. The project is small in scope and there are no watershed restoration sites within the project area that are considered high priority or that would provide a good return for the investment. There has already been considerable watershed restoration work done in the Eagle Creek drainage over the last few years. Five miles of riparian road was removed from the East Fork of Eagle Creek. Over one mile of riparian road was recontoured in Nocelly Gulch. One and a half miles of riparian road was recontoured in the Cottonwood Creek drainage. Six additional stream channel sites were restored, with another 2 to 3 sites and one-quarter mile of road obliteration scheduled for summer 2001 in Cottonwood Creek. Instream work is also scheduled for the West Fork of Eagle Creek under the Hairless Ridge Sale project. Culverts in roads to be used with this proposal were assessed against Inland Native Fish standards and found to be adequate.

In order to restore the vegetative componenet of the area, pines and larch need to be reintroduced into the ecosystem. In this case, we believe the most efficient and reasonably means is through a “light on the land” timber harvest, followed by the introduction of fire and planting to bring the area closer to historic conditions. This could be possibly be done without the use of commercial logging, but such a project would not be economical, efficient or effective considering the diverse needs and desires of the public and national forest timber resources management direction.

Based on this information, a restoration-only alternative was not developed further.

# PUBLIC COMMENTS DURING SCOPING

Three letters were received during scoping for the Little Ucelly Heli Bug proposal. Copies of the letters and our responses are provided below.

#01

**Southeastern Regional Office**
**P.O. Box 276268**
**Boca Raton, FL 33427-6268**
**561.347.0949**

Jose Castro
Idaho Panhandle National Forest
Coeur d'Alene River Ranger District
P.O. Box 14
Silverton, ID 83867

March 7, 2001

Re: FCC and NFPA Scoping Comments on Little Ucelly Bug Salvage Sale

Dear Mr. Castro,

We intend this letter to be an expression of our interest in the Little Ucelly Bug Salvage Sale. In addition, our organizations (Forest Conservation Council [FCC] and the National Forest Protection Alliance [NFPA]) would like to raise several issues concerning the project that should be addressed in subsequent environmental documentation. In general, the project will jeopardize the viability of species that thrive in forest ecosystems through activities associated with timber harvest and road building, intervene in natural disturbance processes that are vital to ecosystem sustainability, and degrade water quality and watershed condition. Further, the project will damage social and economic uses and values associated with natural forests (including forests that are affected by beneficial natural disturbance) for the benefit of the timber industry, even though non-timber uses and values are far more important to local communities and the regional economy.

More specifically, we are concerned with the adverse economic effects of commercial logging on public lands and the damage and loss of ecosystem service values associated with standing or otherwise intact forest ecosystems. The Forest Service's failure to quantify such effects at the project level or for the logging program as a whole is contrary to many federal and USFS regulations. The opportunity costs of the logging program, which include the value of uses forgone on areas logged plus the benefits associated with alternative uses of timber sale funds should be evaluated on a project basis. We request an impartial analysis of all values, both market and non-market associated with each alternative including the no-action and no commercial harvest alternatives. This includes employment and income (including multipliers) associated with non-timber uses.

(1)

This is not exclusively a "timber economics" issue. Certainly, we are concerned with the financial efficiency of the Little Ucelly Bug Salvage Sale, the so-called "below cost" or "deficit sale" issue. However, our concerns go beyond this issue to include the economic efficiency of the timber sale, whether or not the costs and benefits, beyond those to the federal government, meet the government mandate of net public benefit. In other words, are the greater values of standing forest ecosystems disregarded for the short-term financial benefit of the sale of trees to the timber industry?

*Over*

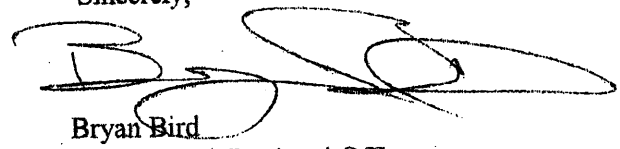
(2) The planned activities are likely to jeopardize the viability of species that find optimal habitat in interior forests, forests with well-developed structures, and forests naturally disturbed by physical and biological processes. For many of these species, the Forest Service has no up-to-date population data describing population numbers, locations, and trends, nor monitoring data on which the agency can rely to determine that the actions proposed in the context of the Little Ucelly Bug Salvage Sale will maintain numbers and distribution of these species sufficient for insuring long term viability.

(3) It is essential that the analysis include an in depth treatment of cumulative effects especially in regards to soils, water quality, fragmentation, old growth, TES, MIS, and neotropical migrant birds. All activities including past, present, and reasonably foreseeable future activities on each and every land ownership must be incorporated.

(4) Finally, we request that a no-harvest, restoration only alternative, one emphasizing natural disturbance processes, be developed and given fair and adequate consideration. It is the duty of the Forest Service to develop a reasonable alternative that would exclude the harmful effects of commercial logging while encouraging natural recovery. The purpose and need of the project can be met more efficiently through means other than commercial timber harvest and those means must be given unbiased attention. Such a no-harvest, restoration alternative **is not** analogous to the no-action alternative.

Please consider these issues as you further develop environmental documentation related to the Little Ucelly Bug Salvage Sale. All further NEPA materials should be mailed to the address above. **Please remove our Western Office and John Talberth from your mailing list. Any combination of John Talberth, Forest Guardians, or Forest Conservation Council, P.O. Box 22488, Santa Fe, NM 87502 should be removed.**

Sincerely,



Bryan Bird
Southeastern Regional Office

## Response to Comments Provided by Bryan Bird, Forest Conservation Council

1. In the case of this project, timber harvest is a management tool proposed as a means to create conditions necessary to rehabilitate a declining forest. The Forest Service management policy is based on multiple use of the forest resource. Federal Code of Regulations (36 CFR 221.3) directs that management plans for national forest timber resources be designed to aid in providing a continuous supply of national forest timber, be based on sustained yield, provide an even flow of timber in order to facilitate the stabilization of communities and employment, and be coordinated with other uses of national forest lands in accordance with the principles of multiple use management. We look at trying to achieve a blend of resource and wildlife habitat needs consistent with public expectations and desires for the National Forest.

   The human presence in the forest over the last 100 years has affected forest ecosystems. Road building, timber harvest, riparian usage, fire suppression, introductions of pathogens such as white pine blister rust have all had an effect on the existing forest ecosystem. Not all forest ecosystems are currently healthy and not all ecosystem health can be restored by just walking away. Some of the natural ecosystem disturbance processes of the past are not as acceptable now with the human presence in the forest and with the various expectations of what the forest should provide.

   Harvesting timber from the National Forest does not preclude the forest from being used for other social and economic uses, even in the same location. If it is the natural "untouched" forest that is providing the social value, there are portions of the forest that are managed for that character and provide that social value. Management of the National Forest is about providing multiple uses, multiple desires, multiple goals.

   Timber harvest is not solely about economic return, although economics is a consideration. The Little Ucelly Heli Bug proposal would be a small-scale project. Vegetative treatments being considered under this project are focused on forest ecosystems that have been damaged as a result of bark beetle mortality. These altered ecosystems appear to be a good place to consider extraction of forest products since much of the timber is dead in these areas. This also has a benefit of reducing future fuel loads and reducing future fire risks. This treatment would provide the opportunity to re-establish more historic pines and larch trees species into areas hard hit by beetles. Economics could be improved by proposing the harvest of healthy green trees, but the intent of this project is to leave healthy green trees on site. This project considers the trade-offs of salvaging much of this timber using expensive helicopter yarding systems versus using roading access and conventional yarding systems to improve economic return.

2. We maintain the viability of wildlife species by ensuring that we maintain various habitats for these species. It is not possible to provide habitat for every given species on every acre at any given moment in time. This habitat is dispersed across the forest. The wildlife analysis for the Little Ucelly Heli Bug proposal considered effects to species with habitat within the analysis area. This included black-backed woodpecker, flammulated owl, fisher, Northern goshawk, and elk (for further information regarding species not discussed, please refer to the "Issues Not Addressed in Detail in this Environmental Assessment" discussion in this Appendix).

   A comparison of effects to wildlife under each alternative is provided in Chapter II, pages II-21 through II-24). Under either action alternative, there may be impacts to individual black-backed woodpeckers because harvest activities would reduce some of the available habitat. The site-preparation activities under the action alternatives could provide some fire-scorched trees after treatment, creating preferred feeding habitat for black-backed woodpeckers. Over the long term, the regeneration of treatment areas to pine and larch would provide more habitat that is preferred for feeding and nesting than is currently available in the project area.

Under all alternatives (including No Action), there would be a loss of 4 acres of the existing 189 acres of suitable habitat and 501 acres of capable flammulated owl habitat. Under all alternatives (including No Action), there would be a loss of 1 acre of the existing 511 acres of capable fisher habitat. There would be no loss of suitable fisher habitat under any alternative. Under all alternatives (including No Action), there would no loss of capable or suitable Northern goshawk habitat. There would be no change in elk habitat potential, which would remain at 62 percent, even during sale activities, under any alternative.

3. The cumulative effects analysis for this project considered effects of past, ongoing and reasonably foreseeable activities. Ongoing and reasonably foreseeable activities are identified in Chapter II. Past activities are described in the existing condition discussions in Chapter III, with additional past harvest information in the Project Files (Vegetation). The area considered for each cumulative assessment is based on the affected resource.
   The analyses focused on those issues considered as factors in the decision to be made (pages II-6, A-1). This is consistent with NEPA direction to focus on a full and fair discussion of significant issues, and to identify and eliminate from detailed study the issues that are not significant (40 CFR 1501.7). Issues not addressed in detail in this Environmental Assessment are discussed briefly in this Appendix (see pages A-1 through A-8).

4. The proposed action is a restoration alternative. In order to restore the vegetative component of the area, pines and larch need to be reintroduced back into the ecosystem. In this case, we believe the most efficient and reasonable means is through a "light on the land" timber harvest followed by introduction of fire and planting to bring the area back to more historic conditions. We are making an investment into the future ecosystem and its sustainability. Could this be done without commercial logging? Yes. But considering the diverse needs and desires of the public, that would not be a reasonable or efficient way to achieve that goal. Timber harvest is a way to reduce fuel loads, create conditions to allow for establishment of pines and larch, and help finance the vegetative restoration process.

   The activities proposed under the action alternatives are consistent with the Forest Plan and other applicable regulatory direction (Chapter III, Vegetation, pages III-14 and III-15). A restoration-only alternative was considered but dismissed from further study because it would not address any of the issues identified in the purpose and need for this project (Appendix A, page A-9). Similarly, a vegetative restoration alternative that did not include recovery of the economic value of the dead and diseased timber would not meet the purpose and need.

16 MAR 2001

#02

# Kootenai Environmental Alliance

P.O. Box 1598 Coeur d'Alene, ID 83816-1598

Joe Stringer, District Ranger
Coeur d'Alene River Ranger District
Fernan Office
Coeur d'Alene, ID 83814

March 15, 2001

Dear Mr. Stringer:

I am submitting the following concerns regarding 3 proposed timber sales described in the Feb 15, 2001 Forest Service scoping notices.

Burnt Cabin Heli Bug:
The document to be prepared for this timber sale needs to include a cumulative effects analysis. The CEA should indicate whether any of the planned 7 logging units are adjacent to or within ¼ mile of logging units associated with either the Barney Rubble's Cabin Salvage sale or any of the Douglas-fir Beetle timber sales. If there are logging units within the CEA area, the document should indicate the number of units that are present.

The document for this sale should include the current ECA for the project area and indicate the number of acres of clearcuts that are listed in the TSMRS for the project area. The document should also indicate if there is data in the project files that indicates the percent of trees that have been identified as dead, dying, and green in each of the 7 units.

Little Ucelly Bug:
The document to be prepared for this timber sale needs to include a cumulative effects analysis. The CEA should indicate whether units 1 thru 7 are adjacent to or within ¼ mile of logging units associated with the Prichard Peak timber sale. The document should also indicate the number of clearcut units that currently exist within this CEA area and indicate the number of acres of clearcuts that are listed in the TSMRS for Prichard Peak area. (1)

There should also be a CEA for units 8 thru 11 that will indicate if any of these units are adjacent to or within ¼ mile of previous logging units in the Eagle Creek area.

The document for this timber sale should include the ECA for the Prichard Peak area and the ECA for the Eagle Creek area. The document should also indicate if there is data in the project files that indicates the percent of trees that have been identified as dead, dying, and green in each of the 11 units. (2)

Missouri Bug:
The document to be prepared for this timber sale needs to include a cumulative effects analysis. The CEA should indicate whether any of the 9 units are adjacent to or within ¼ mile of logging units associated with previous timber sales in this area.

The document should indicate the current ECA for the project area. The document should also supply data for the number of clearcuts that currently exist in the CEA, and indicate the number of acres of clearcuts that are listed in the TSMRS for this area.

The document should also indicate if there is data in the project files that indicates the percent of trees that have been identified as dead, dying, and green in each of the 9 units.

(3) Water/Fisheries:
The documents for each timber sale need to indicate if any stream or Creek in the CEA areas are currently classified as either Not Properly Functioning or Functioning at Risk. If there are NPF and/or FAR Creeks in any of the timber sale areas, the document needs to describe the expected cumulative impact, 40 CFR 1508.7, to each NPF or FAR Creek if the proposed logging takes place.

(4) Monitoring:
The documents for each timber sale need to indicate if there are written evaluations of the findings associated with IPNF Monitoring requirements of previous timber sales in the areas where the logging is being proposed.

We wish to receive a copy of the document when it is released.

Sincerely,

Mike Mihelich

Mike Mihelich Forestry and Water Committee

## Response to Comments From Mike Mihelich, Kootenai Environmental Alliance

1. A cumulative effects analysis was conducted for each of the affected resources (Chapter III). The cumulative effects analysis included past, ongoing and reasonably foreseeable activities, including harvest treatments (Chapter II). Most of the units proposed under the Little Ucelly project are within one-quarter mile of previous logging units, as displayed in the Project Files (Vegetation).

2. The environmental assessment does include the current equivalent clearcut acres (ECA's) for the watershed analysis area (Table III-7). The Equivalent Clearcut Acre figure includes more than existing clearcuts; it also includes partial canopy reductions from other harvest activities that are converted into clearcut acres. The Project Files (Vegetation) identifies the number of clearcut acres in the project area (tracked in the TSMRS data base), and when the harvests occurred. The Project Files also contain information concerning the green canopy component within the activity areas before and after treatment (by alternative).

3. As discussed in Chapter III (Watershed Resources), the Eagle Creek watershed is classified as Not Properly Functioning. The assessment discusses the cumulative effects of the proposed alternatives.

4. As described in Chapter II (Monitoring), the Ecosystem Team for the Idaho Panhandle National Forests has developed a Forest Corporate Monitoring system to track our progress in restoring the ecosystems of the Idaho Panhandle and in being more consistent in the way we analysis effects to the ecosystems. The monitoring is tied closely to findings of the Interior Columbia Basin and Coeur d'Alene Basin Geographic Assessment. Results of Forest level monitoring are published in an annual report; the report is available from the Supervisor's Office of the Idaho Panhandle National Forests, in Coeur d'Alene, Idaho.

   Timber sales are monitored throughout the life of the sale through timber sale administration to ensure implementation is consistent with project design. Post harvest reviews are conducted on a sampling of the sales to monitor if desired end results were achieved. Regeneration units are surveyed to monitor success of reforestation efforts. If used by the specialists in the analysis process, the written evaluations are referenced within the appropriate sections of Chapter III.

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#03

(Provided via e-mail on 3/19/01 and via first class mail)

March 19, 2001

Jose Castro, Acting District Ranger
Coeur d'Alene River Ranger District
2502 East Sherman Avenue
Coeur d'Alene, Idaho 83814

Mr. Castro;

These are comments on the Little Ucelly Bug project proposal (your February 15, 2001 scoping letter), on behalf of the Ecology Center, the Lands Council, and Alliance for the Wild Rockies.

(1) The scoping letter states, "The proposed activities are outside of the analysis area considered under the Douglas-fir Beetle or Small Sales EIS projects." This is clearly a disingenuous statement. Although the Little Ucelly Bug project does not fall within the arbitrary "Analysis Area" boundaries drawn for the Douglas-fir Beetle (DFB) Project, the Little Ucelly Bug project location is bounded on both the north and south sides by the "Hart Analysis Area" (DFB ROD, CDA Map 3 Area, Selected Alternative). It is only a couple miles from areas that were designated for extensive logging in the "Hart Analysis Area" under the DFB ROD. As some of our comments on both the DFB and Small Sales (SS) project were in regards to cumulative effects on aquatic resources downstream of immediate logging activities, and given the relative locations of all these projects, the cumulative effects of all must be analyzed together.

(2) The proposal is more expansion of the Coeur d'Alene River Ranger District's portion of the Douglas-fir Beetle (DBF) project. It seems the IPNF is trying to avoid NEPA's requirement to fully analyze impacts of the combined actions. We incorporate our comments and appeals of the DFB Project and SS project as comments on the Little Ucelly Bug project. We also incorporate the Ecology Center's January 25, 2000 letter to the Forest Supervisor, which the Coeur d'Alene River District Ranger received a copy, as comments on this proposal. Please place a copy of those documents in the Project File as responsive to your request for comments on the Little Ucelly Bug project.

(3) This proposal also continues the IPNF's "management by crisis" which, like the DFB and SS projects, is an overblown reaction to an infestation of a native insect species—one that has been periodically infesting the forest without ill-effects for centuries. The present condition of the Forest follows from decades of overcutting and excessive road

building to the point that the only "justification" for more logging is to perpetrate a "forest health" concern so an increasingly skeptical public can be temporarily confused into submission.

(3) cont'd

Our observations of many cutting units of the DFB sale revealed that the extensive cutting of healthy trees was the result, far more than stated in the DFB FEIS. We suspect that the proposed project would also result in more highgrading of large live and dead trees. Live or dead, standing or fallen, these provide important habitat components of many sensitive, endangered, threatened, and management indicator species, and contribute to development of diverse mature and old growth forests and contribute to habitat connectivity of species depending on old growth.

The extreme importance of old growth forests can be understood by its conceptualization as representative of the biological diversity in largely unmanaged, native forests. In his January 8, 2001 speech, Chief Dombeck provided guidance for the retention of remnant old growth:

> In the not-so-distant past, old trees were viewed as "overmature" or "decadent" and targeted for cutting because of their high economic values. Today, national forests contain our last remaining sizable blocks of old-growth forest—a remnant of America's original landscape. In the future, we will celebrate the fact that national forests serve as a reservoir for our last remaining old growth forests and their associated ecological and social values.

(4)

> In the future, the Forest Service will manage old-growth forests specifically to maintain and enhance old-growth values and characteristics. We will develop manual direction that directs individual forests to:
>
> - Inventory and map remaining old-growth forests;
> - Protect, sustain and enhance existing old-growth forests as an element of ecosystem diversity;
> - Plan for old-growth within a landscape context, extending beyond forest boundaries;
> - Determine the extent, pattern and character of old-growth in the past—prior to European contact and, potentially, at the time the area entered the National Forest System; and
> - Project forward in time the amount, location and patterns of old-growth envisioned under alternative management options.

The *Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin and Portions of the Klamath and Great Basins* (hereafter, *Scientific Assessment)* recognizes the importance of maintaining large, old trees and the loss of big trees in Columbia Basin from logging. From the *Scientific Assessment:*

(5)

> There has been a 27 percent decline in multi-layer and 60 percent decline in single-layer old-forest structures, predominantly in forest types used commercially. (P. 181.)

Throughout most forested Ecological Reporting Areas (ERUs), native herblands, shrublands, and old multi-layered sand single-layered forests have declined substantially in area and connectivity since the Basin was first settled by European-Americans. (P. 60.)

Forest composition and structures have largely become more homogeneous. At the same time that late-seral structures have been declining, early-seral structures have also been declining. These structures have been replaced to a substantial degree with mid-seral structures, resulting in homogeneous forest structures. Although early-seral forests of shade-intolerant species have been fragmented, late-seral shade-tolerant forests have grown more contiguous. Consequently, many forest landscapes are now more homogeneous. (P. ?)

(5) cont'd

Where harvest has removed the long-interval, late-seral, multiple-layer forests, ecosystem management would actively promote restoration for rapid growth of similar structures. Wildlife species associated with these late-seral forests are cavity excavators and those with large home ranges. (P. 169.)

Removal of these trees (residual large live trees) resulted in conversion of the seed source from shade-intolerant species to shade-tolerant fire-, insect-, and disease-susceptible species, as well as losing the diverse structure. Harvest of the large live or dead residual trees from these types results in the loss of important habitats as well as components in long-term nutrient cycles. Management practices can promote the maintenance of these large residual trees where they exist and where they have been harvested or otherwise lost, management can focus on rapid growth of selected young trees with similar characteristics. (P. ?)

We found that salvage activities could contribute to the achievement of long-term ecological integrity by emphasizing prevention of insect and disease outbreaks rather than focusing on the removal of large recently dead trees. (P. 16.)

(S)alvage emphasizes the extraction of specified volumes of dead and green trees at risk of dying. As such, harvest will emphasize larger trees, both green and recent dead, of desirable species ... Our findings suggest that this type of harvesting is not compatible with contemporary ecosystem-based management. (P. 178.)

Emerging Science Issues: We had not anticipated the data indicating the extensive loss of large trees in the landscapes over much of the Basin. The harvest legacy has been more extensive than we thought. (P. 180.)

Management outside the reserve boundaries includes an emphasis on conserving remaining old forest stands and roadless areas larger than 1000 acres (405 ha). (P. 140.)

(5) cont'd

The *Scientific Assessment* makes it clear that the proposed removal of large trees is out of step with the latest scientific thinking regarding the maintenance of old growth and addressing the rarity of large, old trees on the landscape. The landscape in and around the proposal area has been extensively logged and roaded, leading to the simplification of what was a very diverse forest ecosystem. NEPA at 40 CFR § 1502.24 states. "Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements." And at 40 CFR § 1500.1(b) (E)nvironmental information ... must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA."

(6)

The area within and around the Little Ucelly Bug project proposal has been extensively logged and roaded, contributing to cumulative impacts in Eagle Creek, Prichard Creek and the North Fork Coeur d'Alene River. We request that you prioritize restoration rather than invest more taxpayer money in another ill-conceived logging project.

Thank you for considering these comments. Please keep each group on the list to receive all future communications regarding this proposal.

Sincerely,

Jeff Juel

Jeff Juel

and on behalf of:

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## Response to Comments From Jeff Juel, Ecology Center

1. The cumulative effects anlaysis for this project considered effects of past, ongoing and reasonably foreseeable activities. Ongoing and reasonably foreseeable activities are identified in Chapter II. Past activities are described in the existing condition discussions in Chapter III, with additional past harvest information in the Project Files (Vegetation). The area considered for each cumulative assessment is based on the affected resource. The cumulative effects analysis area for watershed resources and fisheries extends from the headwaters of Burnt Cabin Creek to the confluence with the Little North Fork Coeur d'Alene River (Chapter III, Watershed Resources, "Direct, Indirect and Cumulative Effects at the Watershed Scale," page III-40; and Fisheries, "Methodology," page III-42). Proposed activities are outside of the project area boundaries identified for the Douglas-fir Beetle (DFB) EIS and Small Sales EIS. The Little Ucelly units are located in the Eagle/Prichard drainage. None of the units in the DFB EIS are located in either of those drainages. There are units under the Small Sales EIS within this drainage area. The cumulative effects of ongoing and reasonably foreseeable activities include the activities proposed under the Small Sales EIS for this project analysis.

   The Little Ucelly Heli Bug project is a result of the expansion of beetle mortality as a result of subsequent beetle flights. There is no way we could have considered it under the Douglas-fir Beetle assessment because it was outside of the Douglas-fir Beetle analysis areas, and the mortality had not occurred at that time. This Burnt Cabin Heli Bug Environmental Assessment has fully analyzed the cumulative impacts of this proposal with full consideration of ongoing and foreseeable activities in and around the project area.

2. The Environmental Impact Statements for the Douglas-fir Beetle and Coeur d'Alene River Ranger District Small Sales Projects addressed different proposals at different levels of scope in different geographic locations. In comments on numerous other project-level proposals, Mr. Juel has requested that we incorporate his letters to the Forest Supervisor regarding his desires for management of the National Forest. We have consistently responded that such an approach to public comment is insufficient and does not meet the requirements for commenting on Forest Service propoosals, which requires "specific facts or comments along with supporting resons that the person believes the Responsible Official should consider in reaching a decision" (36 CFR 214.5[b]). Mr. Juel was advised that many of the concerns he raised in his January 25, 2000 letter are more appropriately addressed at the Forest Plan scale or at even a more broad scale (letter to Jeff Juel from Forest Seupvisor David Wright, dated February 11, 2000). Mr. Juel has been asked to respond as specifically as possible to project-level proposals.

3. This environmental assessment is a response to a change in stand conditions as a result of bark beetle and root disease mortality. It is not management by crisis, but it is a project that warrents urgency if it is going to be implemented. Loss of timber value is occurring. If the decision is to proceed with the salvage of this material it must be completed in a timely manner. Public comments related to the DFB EIS suggest that a significant portion of the public thinks it is important to utilize dead and dying timber for commodity production and to reduce long term fuel loadings.

4. There is no disputing the importance of <u>true</u> old growth forests and their associated ecological and social values and of the direction stated in the comment letter to protect, sustain, and enhance existing old-growth forests as an element of ecosystem diversity. This project does not propose any entry or enhancement treatments for stands being managed for old growth habitat.

5. The proposed treatments under the Little Ucelly Heli Bug project are consistent with the Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin. This project does not propose to remove late-seral residual large stand structure. The proposal is entering even-aged, shade-tolerant, homogeneous type stands which the assessment says we have far too much of as compared to historic and ecologically sound conditions. Based on the TSMRS data base, all but one acre of the proposed treatments are in immature sawtimber (stands that are 100 years of age or less).

   The proposed treatments would not remove any late-seral structure such as large pines or larch. Any of this late seral structure, live or dead, would remain on site. The larger Douglas-fir and grand fir that are live and healthy would remain on site. Even though these trees are not the shade-intolerant seral species referred to in the Interior Columbia Basin Assessment, this would retain a larger tree component on site, with the potential to become residual old forest structure in the future. Two to four of the largest dead trees per acre would also be retained on site for habitat for snag dependant species.

   The proposed harvests with underplanting to pines and larch would create a multi-layered stand characteristic and increase early-seral structure, which has been identified by the GeographicAssessment as a component that is declining.

6. The proposed action for the Little Ucelly Heli Bug project is vegetative restoration designed to re-establish the vegetation components that Mr. Juel is calling for in his comments. The activities proposed under the action alternatives are consistent with the Forest Plan and other applicable regulatory direction (Chapter III, Vegetation, pages III-14 and III-15). A restoration-only alternative was considered but dismissed from further study because it would not address any of the issues identified in the purpose and need for this project (Appendix A, page A-9). Similarly, a vegetative restoration alternative that did not include recovery of the economic value of the dead and diseased timber would not meet the purpose and need.

# APPENDIX B
# SPECIFIC UNIT INFORMATION

## Alternative 2

| Unit | Acres | Rx | Volume | Yarding | Fuels | Planting |
|---|---|---|---|---|---|---|
| 1 | 4 | Group Shelterwood | 25 mbf | Heli | Underburn | White pine, ponderosa pine, larch |
| 2 | 4 | Salvage | 25 mbf | Heli | Lop & Scatter | None |
| 3 | 3 | Salvage | 15 mbf | Heli | Lop & Scatter | None |
| 4 | 13 | Salvage | 70 mbf | Heli | Lop & Scatter | None |
| 5 | 5 | Salvage | 25 mbf | Cable | Yard tops | None |
| 6 | 1 | Salvage | 10 mbf | Cable | Yard tops | None |
| 7a | 3 | Salvage | 15 mbf | Heli | Lop & Scatter | None |
| 7b | 3 | Salvage | 20 mbf | Heli | Lop & Scatter | None |
| 8 | 3 | Salvage | 20 mbf | Cable | Lop & Scatter | None |
| 9 | 4 | Salvage | 25 mbf | Cable | Lop & Scatter | None |
| 10 | 3 | Seed Tree | 20 mbf | Tractor | Underburn | White pine, ponderosa pine, larch |
| 11 | 5 | Salvage | 30 mbf | Cable | Lop & Scatter | None |

## Alternative 3

| Unit | Acres | Rx | Volume* | Yarding | Fuels | Planting |
|---|---|---|---|---|---|---|
| 1 | 4 | Group Shelterwood | 35 mbf | Skyline | Underburn | White pine, ponderosa pine, larch |
| 2 | 4 | Salvage | 35 mbf | Skyline | Yard tops | None |
| 3 | 3 | Salvage | 20 mbf | Skyline | Yard tops | None |
| 4 | 13 | Salvage | 95 mbf | Skyline | Yard tops | None |
| 5 | 5 | Salvage | 25 mbf | Cable | Yard tops | None |
| 6 | 1 | Salvage | 10 mbf | Cable | Yard tops | None |
| 7a | 3 | Salvage | 15 mbf | Cable | Yard tops | None |
| 7b | 3 | Salvage | 20 mbf | Cable | Yard tops | None |
| 8 | 3 | Salvage | 20 mbf | Cable | Lop & Scatter | None |
| 9 | 4 | Salvage | 25 mbf | Cable | Lop & Scatter | None |
| 10 | 3 | Seed Tree | 20 mbf | Tractor | Underburn | White pine, ponderosa pine, larch |
| 11 | 5 | Salvage | 30 mbf | Cable | Lop & Scatter | None |

**increase in volume associated with road right of way and corridor volume.*